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# CLINICAL MEDICINE AND SURGERY



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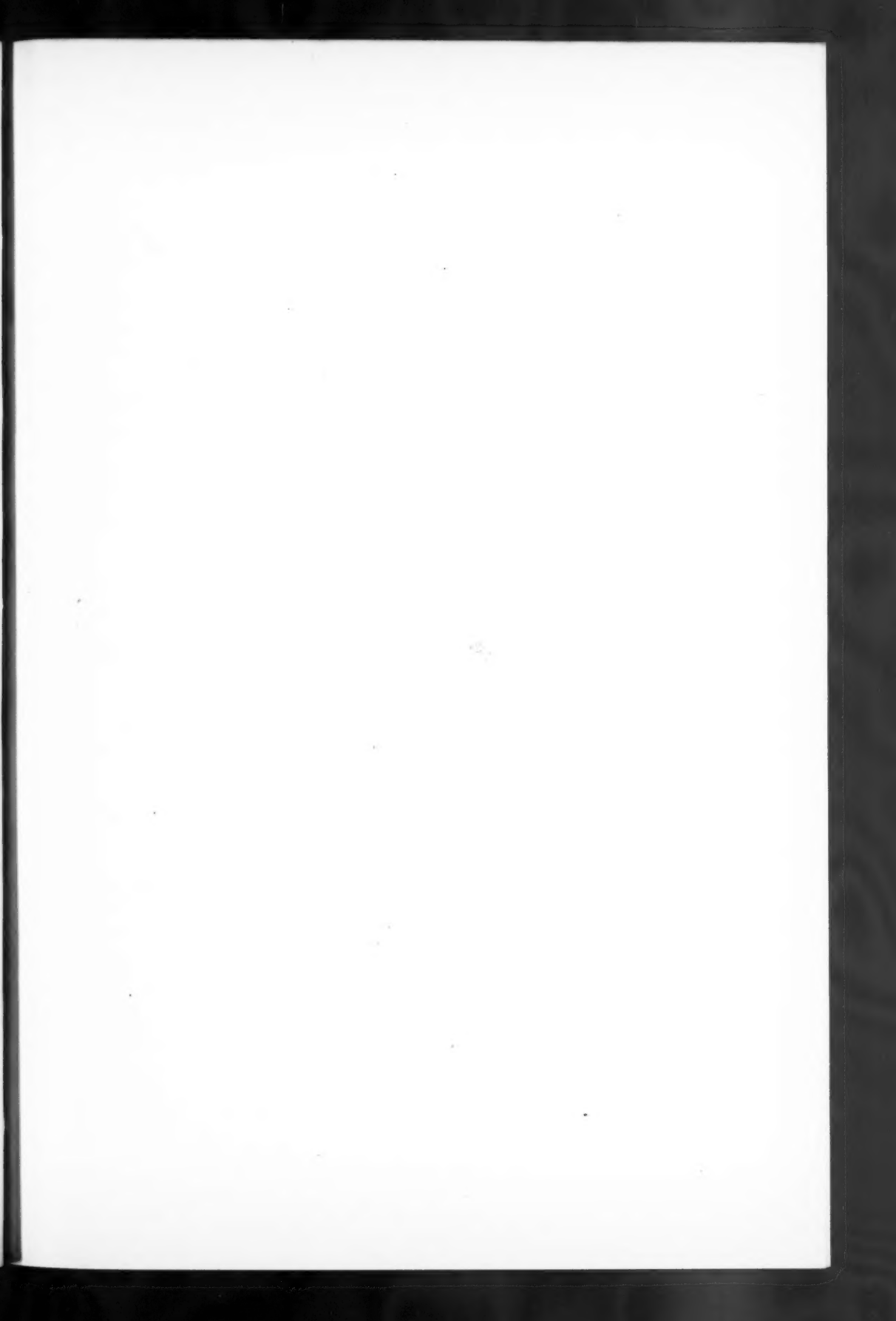
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## EDITORIAL

### Thomas Willis

THERE seems to be a rather general impression that, as a class, physicians tend to be irreligious. If one makes the word religion synonymous with orthodox fundamentalism, that may be true. Otherwise not.

As a matter of fact, there have been, all down the centuries, and are now, medical men who are priests and ministers of religion; and a number of the outstanding figures in medical history, such as Miguel Servetto, have been conspicuously religious men, though often heterodox in their opinions.

A highly successful physician, who was deeply and orthodoxly religious, was born, January 27, 1621, at Great Bedwyn, Wiltshire, England, the eldest son of a farmer, Thomas Willis, and was named after his father.

After receiving his elementary education at the private day school of Mr. Edward Sylvester, he entered Christ Church, Oxford, in 1636, took his bachelor's degree in arts in 1639 and his master's degree in 1642.

About this time the Civil War began, and young Thomas joined the army of King Charles I and became a member of the garrison of Oxford. The soldiering did not occupy all of his time, so he filled it in by studying "physic" (or medicine) and took his bachelor's degree in 1646, at about the time Oxford surrendered to the Cromwellian parliament.

Being among the "outs" and having to earn a living, Mr. Willis began to practice his profession in Oxford, but remained a staunch royalist and ardent Anglican churchman. In this latter connection, he set apart a room in his house as an oratory, and here Dr. John Fell, who was afterward dean of Christ Church and bishop of Oxford, said the Services twice daily, to a congregation consisting of most of the royalists of Oxford, especially the scholars, who had been ejected from their positions by Cromwell. Later, when he was a famous practitioner and teacher, he still had an oratory in his house, with a priest to exercise the liturgy and the sacraments at six in the morning and five in the evening, daily, so that he and his students might have the consolations and inspiration of religion at the beginning and end of their working day.

In 1660, after the Restoration, Willis was appointed Sedleian Professor of Natural Philosophy at Oxford, and the same year became a Doctor of Medicine and was made a member of the Royal Society.

After the fire of London, in 1666, Dr. Willis removed to Westminster, London, and was so successful in his practice that "never any physician before went beyond him or got more money yearly than he." He was made a Fellow of the Royal College of Physicians and was appointed physician to the King, but refused knighthood.

It is reported that, during the years of his greatest activity and prosperity, he gave all the fees he received on Sundays (which were his busiest days) to charitable uses, which was more than the conventional tithing.

With all his immense responsibilities as a popular and fashionable clinician, Willis was an indefatigable researcher and student and a prolific writer. He had, in large measure, that faculty of close, keen and unbiased clinical observation which made Hippocrates and Sydenham famous, and he recorded what he observed without reference to the "authorities."

His earliest writings—those on Fermentations, Fevers, and Urines, all done in smooth, neat and elegant Latin—appeared during the pre-Civil War period; the most famous—the "Anatomy of the Brain," illustrated by Sir Christopher Wren, which was the most complete and accurate account of the nervous system up to that time—in 1664; and the last, his "London Practice of Physic," appeared posthumously, in 1685. Of his "*Pharmaceutica Rationale*," which gave a valuable account of the materia medica of his time and enjoyed a great reputation in his day, Osler said, "It gives me a shudder to think of the constitution our ancestors had, and how they withstood the assaults of the apothecary."

The name of this great physician is preserved in the circle of Willis (that hexagon of bloodvessels at the base of the brain); the nerve of Willis (eleventh cranial or spinal accessory nerve); and *paracismus Willisii* (improved hearing in the midst of noise).

Besides these discoveries, he was the first to note the sweet taste of the urine in diabetes (which he called "the pissing evil") and to distinguish between diabetes mellitus and insipidus; he wrote one of the earliest accounts of typhoid and typhus fevers; was the first to describe and name puerperal fever; and made the best qualitative urinalysis which was possible in his time. His accounts of hysteria, hypochondria and, especially, of paresis, can hardly be improved upon even today, as striking clinical pictures of these conditions.

A sketch of his life by Anthony à Wood, which appears to be nearly contemporary, says of him that "he was a plain man, of no carriage, little discourse, complaisance or society; yet for his deep insight and happy researches into natural and experimental philosophy, anatomy and chemistry, and for his wonderful success and repute in his practice, none scarce hath equalled, much less surpassed him."

The illustrious career of Willis came to a close November 11, 1675, and he was laid to rest, in the same grave with his wife, in Westminster Abbey, the cost of his funeral having been £470 4s. 4d.—a not inconsiderable sum, even in these days of funereal elegance. Truly, the sincere and studious clinician reaps his reward, in all times and places.

It's not how much experience we have had, but how much we have learned from our experience that counts.—*Little Journal for Physicians.*

### Ionization for Hay Fever

**H**AY fever patients, while not in a dangerous condition, are so miserably uncomfortable that they are almost as grateful to the physician who can give them relief, as if he had pulled them back from the brink of the grave.

Hitherto, the methods of treatment which offered anything more than mere evanescent palliation (desensitization with vaccines or the complete detoxication and rhinologic regime outlined by Adam and Haseltine) have required a great deal of time—months, at least—so that they offered no hope to the patient who had neglected to begin them long before the time for the beginning of his symptoms and came to the doctor begging to be relieved of his distress.

A method is now being rather widely discussed which seems to offer a definite hope that it will relieve hay fever patients promptly and reasonably permanently (from one to three years, according to Warwick, whose recent paper is abstracted elsewhere in this issue), with one or, rarely, two applications. This is the ionization treatment, details of which are given in Warwick's paper and in an article by Haseltine which is to appear in *Eye, Ear, Nose and Throat Monthly* for August, 1934.

Haseltine emphasizes the fact that this is not a treatment for the systemic toxicosis which produces the symptoms of allergy, including asthma, but declares his conviction that it is the most successful method so far introduced for removing the hyperesthetic condition of the nasal mucosa which results in reactions to the presence, not only of seasonal pollens, but also of those non-seasonal irritants, such as animal emanations, dust, etc., which give rise to so-called perennial hay fever or hyperesthetic rhinitis.

The treatment consists, essentially, of the introduction of certain metals into the mucous tissues by means of the galvanic current. The apparatus, which is not unduly

expensive (in fact, it is easier to acquire the apparatus than the technic), consists, essentially, of a source of smooth galvanic current (preferably a battery of dry cells), a milliamperemeter, a means for testing the resistance in the patient's circuit, a regulator for controlling the current intensity and a timing device.

Franklin, of England, who was the first to develop and report this method, uses a zinc electrode and one-percent zinc sulphate solution as the electrolyte; Warwick makes his electrode and solution of a combination of zinc, cadmium and tin; Haseltine and Riordan are experimenting with these and other methods.

The technic of preparing the nose for these treatments is very exacting, but this is not the place to give its details, which are sketched in Warwick's abstract on p. 387 and are discussed even more fully in Haseltine's forthcoming article. It may, however, be well to note that Haseltine finds a 2-percent solution of Butyn preferable to the 10-percent cocaine solution recommended by Warwick, for the preliminary local anesthesia.

This brief note is intended merely to call the attention of our readers, at this time of year when the hay fever season is upon us and many patients will be clamoring for relief, to the fact that a treatment is available which bids fair to give these unfortunates a measure of help heretofore unobtainable, and to suggest that they investigate the details as promptly and fully as possible and prepare themselves, either to give these treatments or to refer such patients to a competent rhinologist, who is equipped to give them. In either case, the general clinician must be as fully conversant with the presently known facts as is possible.

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It is well known that *all* life-processes are accompanied by *electrical* phenomena.—AUGUSTA GASKELL, in "What is Life?"

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### The Purposes of Reading

**T**HERE are several types of reading, and all have (or should have) their times and places in the life of every reasonably civilized and cultured person.

One may read to kill time; and, if one feels that one can afford to indulge in this distressing and unjustifiable type of murder, there is probably no way in which it can be committed with less disastrous consequences to the murderer. For this purpose, any form of printed matter will do.

One may read for casual and more or less ephemeral information, as one glances through the newspaper and the weekly news summaries, with practically no thought and with little attention, largely as a matter of habit. A few minutes a day devoted to this type of reading are probably a necessary part of one's preparation for ordinary social intercourse; but it can easily be (and frequently is) overdone. The mind of the man who obtains his sole literary pabulum from the newspapers is in practically the same condition as the horse which was *almost* taught to live on sawdust in place of oats.

One may, deliberately and purposefully, read for mental rest and relaxation, which are just as important, in their place, as rest and relaxation of the body, and should be combined with them. For this purpose the reader should choose a book which he thoroughly enjoys and which deeply engages his interest, but is as far as possible from the affairs of his daily life, from which he seeks surcease, so that it may act, more or less, as a mental narcotic or escape mechanism. Detective stories and poetry (if one is culturally up to this last) seem to be the most general choices in this field.

One may read for the acquirement of practical or technical knowledge, which one expects to use promptly in one's vocation or avocation. Such reading is absolutely essential to the man who earns his living by any other means than rough manual labor, and especially to those engaged in professional or scientific pursuits. Such persons must spend at least half, and probably a larger part, of their reading hours in this way, if they hope to succeed, the choice of books and periodicals depending strictly upon the end in view. Here close attention is necessary, but not thought; though the fruitfulness of such exercises will be quite accurately proportional to the thought power expended in connection with them.

One may read for the development of culture and taste, as most people read Shakespeare and other poetry, most essays and criticisms, and books about the various arts and sciences, in the practice of which they are not directly engaged. A certain part of every civilized person's reading time should be devoted to exercises of this sort, the choice of books being absolutely a personal matter and depending on the individual bent of the reader's mind, the particular target at which he is aiming, or both. A good deal of attention and some thought, of

the less fatiguing sort, are requisite to all serious reading for culture.

And, last, one may read for the development of the mind by the stimulation and use of thought; for *thinking* is the only exercise which will cause the intellect to become more powerful, skillful, flexible and responsive to the Ego within, who makes use of it in his mundane experiences, as they arise. Such reading is *always hard* and cannot be taken on the run. Most people speak of it as being "over their heads," but this is an incorrect statement. It is merely incompatible with their present habits, which must be changed by anyone who aspires to have sufficient mental power to be properly called a man (Sanskrit, *manas*, meaning, "one who thinks").

The man whose reading is entirely of a sort which can be taken at any speed—whose favorite books require no chewing, but will melt in the mouth, so to speak—may be perfectly sure that it is doing nothing to develop his mind and is giving him only a practically negligible amount of solid, enduring knowledge or truly satisfying culture. If he is satisfied with that condition, he probably will not have "wasted his time" by reading to this point. If not—if he really has any intention of making himself a fit companion for his solitary hours—he must make up his mind to spend a certain part (even if it is a small one) of every day in the kind of reading which will strain his attention and make him think until it hurts, with the certainty ahead that, when the muscles of his intellect and his will become innured to such exercises, he will find them the most exciting sport in the world.

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In no profession does culture count for so much as in medicine, and no man needs it more than the general practitioner.—SIR WILLIAM OSLER.

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### Irradiated Milk

IT is generally accepted that milk is the most nearly complete food available to man; and the importance of an adequate supply of vitamins A and D is now almost as widely accepted.

Good milk, in its natural state, contains all of the necessary food factors except copper and iron, in a well balanced combination and, in addition, about 1,000 to 2,000 vitamin A

units and about 5 to 12 Steenbock units of vitamin D per quart. The vitamin A content is sufficient, but not that of vitamin D. This latter can, however, by a relatively simple process of ultraviolet irradiation, be increased to 50 Steenbock units per quart, which is enough to protect all but a very few children against rickets, if a quart of milk is taken daily.

When once this additional vitamin D has been imparted to milk, it appears not to be affected or diminished by any of the ordinary methods of processing—pasteurization, evaporation, drying, the making of butter, etc.

In the larger centers of population, irradiated whole milk is now available, at a moderate increase in price; but this is not yet true in the smaller towns and in rural districts, and possibly never will be. The dwellers in such places are not, however, deprived of this advantage, for several of the manufacturers of evaporated milk are having the crude or whole milk irradiated before it is processed, and the resulting products appear to lose none of their desirable properties during such manipulations. In fact, many authorities on nutrition declare that, especially in child feeding, evaporated milk is, in some respects, superior to the raw article, and in none is it inferior. The irradiated evaporated milks are now plainly so labelled.

This advance in the practical science of nutrition is of interest to all physicians, because many of their patients are averse to taking "medicine" daily, and consider the concentrated vitamin products as drugs. Moreover, the cost of these dietary additions is, in some circumstances, a serious obstacle to their wider use.

All infants and young children, and all pregnant and lactating women need a fully adequate supply of vitamin D and also of calcium and phosphorus. Irradiated milk offers all these necessary ingredients in a pleasant and acceptable form, which will not be regarded, even by the ignorant, as habitual "drug" taking.

This is a matter about which every clinician should be informed, and the Wisconsin Alumni Research Foundation, Madison, Wis., has prepared a brochure which gives an outline of the presently available information.

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# LEADING ARTICLES

## The Principles of Allergy\*

By John A. Kolmer, M.D., Dr. P.H., D. Sc., LL.D., Philadelphia, Pa.  
Professor of Medicine, Temple University; Director of Research Institute of  
Cutaneous Medicine, Philadelphia.

PROBABLY as many as 5 to 10 percent of human beings present clinical manifestations of allergy, while even a larger number may give positive skin reactions without clinical manifestations (potential allergy).

The diagnosis and treatment of allergy has become a specialty in medicine. Among the better known allergic diseases may be mentioned:

Hay fever.

Vasomotor rhinitis (allergic coryza).

Some cases of vernal conjunctivitis.

Asthma.

Eczema; urticaria; angioneurotic edema; erythema multiforme.

Dermatitis venenata.

Intermittent hydroarthrosis.

Migraine.

Epilepsy.

Acute gastro-intestinal allergy (abdominal migraine).

Drug allergies (quinine; arsphenamine, etc.).

Serum allergies:

(a) Acute shock.

(b) Serum disease.

Tuberculin, luetin, tricothylin and other bacterial allergies.

### Terminology

A large number of new terms have been proposed. The first was *anaphylaxis*, proposed by Richét and meaning "without protection."

*Hypersensitiveness* is an excellent term, as it clearly defines the clinical state. *Idiosyncrasy* is practically synonymous.

Probably the best and most widely used is *allergy*, coined by von Pirquet and meaning "altered reactivity."

*Atopy* has been proposed by Coca for those allergies in which heredity is important (especially hay fever and asthma) and means "strange disease."

The exciting agent or cause is generally designated as *allergen*, *atopen* or *anaphylactogen*.

The antibody concerned is generally designated as *allergen*, *reagin* or *anaphylactin*.

### Classification

Many classifications have been proposed and none is entirely satisfactory at present.

\*Abstract of address before the Section on Otolaryngology of the College of Physicians of Philadelphia.

Coca's classification is:

#### *Hypersensitiveness*

*Anaphylaxis* when occurring in the lower animals with demonstrable antibody in the blood, as in serum anaphylaxis of the guinea pig.

*Allergy* when occurring in the human being. *Atopy* when heredity is an etiologic factor.

The author uses the following:

#### *Allergy*

*Anaphylaxis* { Natural  
Acquired

When the exciting agent is a protein or protein derivative.

*Hypersensitiveness* { Natural  
Acquired

When the exciting agent is presumably a non-protein substance.

#### *Allergens*

The exciting agents of allergic sensitization are usually proteins or protein derivatives (serums; foods; dandruffs; etc.).

Pure protein-free fats do not produce sensitization.

Complex carbohydrates, and especially carbohydrate-protein moieties, may be allergens (pollens, plants, etc.).

Drugs, including the metals, may be allergens, presumably by combination with body proteins to form sufficiently foreign protein complexes to excite sensitization.

Bacterial products, including toxins (diphtheria), may excite allergic sensitization; these are probably proteins or protein-carbohydrate combinations.

Theoretically, human beings, and especially those predisposed by heredity, may acquire allergic sensitization to any foreign protein of animal or vegetable origin. Consequently the list of known allergens is bewilderingly large and is growing every year.

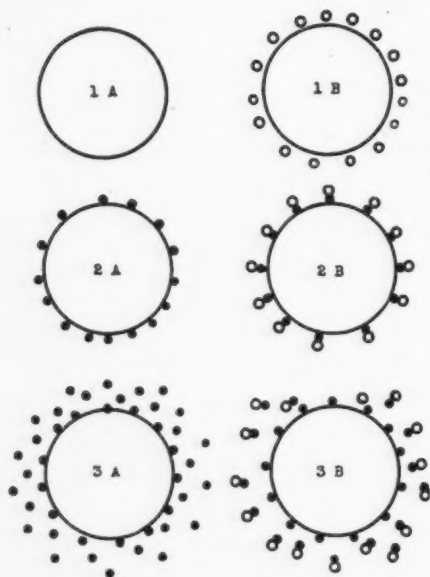
These agents gain access to the body by: (a) inhalation; (b) ingestion; (c) by contact with the skin; and (d) by injection.

#### *Allergins*

An antibody to the exciting agent or allergen is necessary for the production of allergy. It is called *allergen*, *reagin* or *anaphylactin*. When in or upon cells, the latter are said to be "sensitized."

The antibody may be free in the blood serum and has been found especially in serum





1 A: A normal cell.  
 1 B: A normal cell surrounded with antigen; nothing happens.  
 2 A: A cell sensitized with antibody.  
 2 B: A sensitized cell plus antigen=allergic shock. This may result in exhaustion of antibody=desensitization.  
 3 A: The cell of an immunized animal with excess of antibody free in the blood.  
 3 B: Antigen reacting with antibody in blood and cell protected=antibody production or antianaphylaxis. (After Topley and Wilson.)

allergy, hay fever, asthma and some cases of eczema. So far it has not been demonstrated in the blood in urticaria, angioneurotic edema, migraine, tuberculin hypersensitiveness nor in drug allergies.

Its presence in the blood may be demonstrated by the passive transfer method of Prausnitz and Küstner in susceptible human skins, or sometimes by injection into guinea pigs.

Antibody is found in the blood only in skin-positive individuals.

If all of the antibody is in or upon cells, it cannot be demonstrated in the blood by these methods and may be absent in skin-positive reactors.

The amount of antibody present in the blood is proportional to the degree of skin reactions, but not to severity of symptoms. It is sometimes increased by the administration of allergen.

Precipitins and allergins may co-exist in the blood, but are probably separate antibodies.

#### The Mechanism

Many theories have been proposed. Most of these are now only of historical interest.

The most commonly accepted is the *cellular theory* (See Fig. 1):

1.—The exciting agent or allergen engenders antibody.

2.—The antibody occurs principally in or upon cells (sensitization).

3.—Subsequently, when allergen gains access, it unites with antibody.

4.—The result is allergic "shock" of the cell producing or liberating a histamine-like substance responsible for the lesions and symptoms.

5.—The union of free or circulating antibody in the blood with allergen is believed to be without harmful effects and may prevent shock of cells (*antibody protection*).

The *humoral theory* is still adhered to by some students of allergy:

1.—The antibody occurs in the blood.

2.—Subsequently, when allergen gains access, it unites with the antibody in the blood, with the production of a toxin responsible for the lesions and symptoms.

3.—The toxin however, has never been satisfactorily demonstrated in the blood, although toxic substances producing allergic-like reactions have been produced in the test tube by antibody and various substances (serotoxins).

#### Influence of Heredity

Heredity exerts a very important influence upon allergy. The fetus may be sensitized *in utero*, especially to foods taken by the mother, but this is *congenital allergy* and may be responsible for eczema in infants. Passive sensitization of the fetus is rare.

The nature of this hereditary influence is not known. It is:

1.—Apparently a dominant Mendelian character.

2.—Probably an exaggerated capacity of body cells for acquiring sensitization, along with an unstable or hyper-excitable vasomotor system.

If one parent is allergic, about 15 percent of the offspring develop some type of allergy by 5 years of age; 32 percent by 10 years; and 50 percent by 30 years. If both parents are allergic, about 36.3 percent of offspring develop allergy by 5 years of age and about 60 percent by 20 years.

From 3.5 to 8.7 (average 6.4) percent of persons with allergy have apparently no hereditary background. Women are more likely to transmit the hereditary factor than men, but sensitization requires contact with the exciting substance or allergen. Contact alone, however, usually does not result in sensitization in the absence of the hereditary factor, in which there is a tendency to specificity.

#### Desensitization

Desensitization means the removal of antibody from sensitized cells. This is usually accomplished by the gradual administration of an extract of allergen and forms the basis of specific therapy (*specific desensitization*).

Partial desensitization may sometimes be

accomplished by the administration of unrelated substances like peptone, sodium chloride, beef serum, etc. (*non-specific desensitization*).

*Anti-anaphylaxis* means the presence of sufficient free antibody in the blood to protect sensitized cells from contact with allergen.

There is no sure way of preventing sensitization except avoiding contact with allergens. Heating serum at 56°C. for one hour reduces its capacity for sensitization.

Acute allergic shock may be reduced or prevented by narcosis; also by the administration of adrenalin chloride, with or without atropine.

#### Diagnosis

A detailed and very careful history and physical examination are of great importance. Real detective ability and patience are sometimes required.

Skin tests are invaluable, but can err in both a positive and negative way. The skin may give false negative reactions if it fails to share in the sensitization; or may give positive reactions to substances which do not produce demonstrable lesions or symptoms.

Cutaneous or scratch tests are usually sufficient in hay fever and asthma. They are highly specific, cheap and quickly conducted.

Intracutaneous tests are more sensitive but more likely to yield non-specific reactions; they are also more dangerous, more costly and require more time. They are especially valuable in the food and bacterial allergies.

It is not a choice of either method; diagnosis may require both.

Eye and nose tests are sometimes serviceable, especially the eye or conjunctival test for serum allergy. The "patch test" is sometimes required.

The method of passive transfer to suscep-

tible skins is occasionally useful in diagnosis, especially in extensive eczema, urticaria and angioneurotic edema.

The therapeutic test or trial method may be required.

#### Treatment

Accurate etiologic diagnosis is of prime and fundamental importance.

Avoiding all possible contact with the exciting agents, or their removal, constitutes the best treatment, when possible. Specific desensitization should otherwise be attempted, but is not always successful in the case of those exciting agents that cannot be removed or avoided. Non-specific desensitization is of very limited clinical application.

There is no short cut or royal road to specific desensitization. A large number of injections or administrations of the exciting agent are required, over a long period of time.

Pre-seasonal desensitization in hay fever has met with a large measure of success, especially in the ragweed type.

Desensitization with autogenous bacterial vaccines may be successful in allergic bacterial asthma, etc.

Adrenalin (epinephrin) chloride and, to a lesser extent, ephedrine are physiologic antidotes for allergic reactions.

Desensitization to serum in horse asthma cannot be accomplished to the point of rendering the injection of serum safe. *Never give serum to a stranger before securing the history.* Desensitization to serum in acquired allergy may be accomplished, but great care is required if serum is given intravenously.

The treatment of many of the allergies is still unsatisfactory because of our incomplete knowledge of the subject and inadequate methods.

2101 Pine St.

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#### EXAMINATIONS, OLD AND NEW

*I have often had occasion to think of the difference in the actual examinations made by modern clinicians and those of the great masters of the last generation, and have felt, not once but a hundred times, that the sum total of essential information obtained by modern methods is not equal to that which was obtained by our medical fathers.*

*This distinctive loss is due partly to a dependence on the laboratory for a diagnosis, and partly to the general hurry and bustle of our age, which causes the clinician to jump at conclusions rather than take the necessary time and trouble to observe the patient.*—BENJAMIN K. HAYS, M.D., Oxford, N. C., in *Southern M. & S.*, Nov., 1933.

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#### PREPAREDNESS AND WAR

*Let no man dare to say, if he would speak the truth, that the question of preparation for national defense is a question of war or peace . . . it is not permissible for any man to say that anxiety for the defense of the Nation has in it the least desire for a power that can be used to bring on war.*—WOODROW WILSON.

# Smallpox Toxin in the Treatment of Tuberculosis\*

(A Preliminary Report)

By W. L. Frazier, M. D., Boise, Idaho

THE purpose of this paper is to report some observations which have been made relative to the effect which smallpox and smallpox toxin have on people who have tuberculous infections.

About 1890, I heard my father (who was a physician) relate the histories of several patients who had what he called consumption, and then had smallpox, following which their consumption cleared up. I cannot give details related to these cases, but I know that some of them were far advanced and, as tuberculosis was not recognized early in those days, the others must likewise have been far advanced.

Some other observations parallel those made by Drs. Horace John Hawk and William E. Lawson, which were published in the *American Review of Tuberculosis*, Vol IV, No. 7, Sept. 1920; which reports showed absence of demonstrable symptoms in tuberculous individuals after having smallpox.

In trying to reason out why tuberculosis clears up following smallpox, it seems logical to conclude that, as toxins eliminated into the system or introduced into it by hypodermic injection raise the body's resistance by stimulating an increase of one or more of the defensive properties of the individual, it is probably the toxin eliminated by the smallpox infection and absorbed by the patient that brings about this result, by increasing the defensive properties of the tuberculous individual. Though these defensive properties are usually especially active against the organism by which the toxin is produced, it is known that some toxins raise the resistance against some bacteria other than those producing that particular toxin.

Making this conclusion the foundation to build upon, from a quantity of smallpox vaccine the smallpox toxin was extracted, standardized on rabbits, retested on human volunteers and used to treat patients with tuberculous infections.

## Technic of Preparing Toxin

The toxin is extracted from smallpox vaccine by taking a quantity of the vaccine and diluting it to twenty times its quantity with distilled water. The mixture is then sterilized in a water-bath by heat; the fluid filtered out; the residue ground; the same amount of distilled water again added to it; the residue and water shaken well together; again filtered; and the two filtrates mixed.

The preparation is then evaporated to 25

percent of its quantity, again sterilized, and tested on rabbits for toxicity. Several different test processes have been used, and the following procedure adopted:

Rabbits about one year old are chosen for the tests.

4 minims of the toxin are given to	Rabbit No.	1
8 "	"	2
12 "	"	3
16 "	"	4
20 "	"	5
24 "	"	6
28 "	"	7
56 "	"	8

The dose which produces lethargy and loss of appetite in the rabbit is chosen as the standard dose for an adult human patient. The amount which produces these conditions in a rabbit varies with extracts from different vaccines, but usually is 16 to 20 minims (1.0 to 1.3 cc.). If more than 16, the extract is evaporated down to a sixteen-minim dose.

The effects of the higher test doses on rabbits are interesting. Twenty-eight (28) minims usually produce approximately the same reaction that 8 minims of standard typhoid vaccine produce in a rabbit of the same age and weight. Fifty-six (56) minims produce a lethargy which lasts from two to three days, usually three.

Several solvents other than distilled water have been tried, but distilled water is the most satisfactory.

Several types of filter have been used. The filter adopted is a closely-woven gauze, made eight-ply. This allows enough solid material to pass to make the solution about as cloudy as the ordinary typhoid vaccine. It has been observed that the results are more rapid if the solid material is not all filtered out. (That small quantity of solid material causes no inconvenience to the patient; it is readily absorbed.)

I attribute the better results occurring when some solid material is allowed to pass to the probability that there is only one toxin present in the clear solution—an exotoxin—and two in the cloudy solution; an exotoxin and an endotoxin. The evidence in favor of the presence of an exotoxin is based on knowledge that, when an individual is immunized with attenuated smallpox organisms, the site of the vaccination is local and there must be toxin absorbed from this local area; it must be an exotoxin to be absorbed from the local superficial area.

If excessive heat is used in sterilizing the extract from the smallpox vaccine, it loses practically all of its efficiency if all solid matter has been filtered out; and it loses much

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of it even when the solid material has not all been filtered out.

An exotoxin is destroyed by excessive heat; it would, therefore, be reasonable to suspect that an exotoxin existed and that it had been destroyed by the heat.

The extract containing the small quantity of solid material is not so much affected by the same degree of heat, endotoxin being more nearly thermostable than exotoxin. This suggests the conclusion that there is bound, in the solid material, smallpox organisms which are filtered out when the solution is filtered entirely clear, and that these contain endotoxin.

The following are histories of some patients who have passed sufficient time since their treatment with smallpox toxin to make their cases interesting:

#### Case Reports

**Case No. 1:** A woman, twenty-eight years of age, had had an active tuberculous infection for three years. The sputum was profuse (from 250 to 400 Gm. a day) and contained numerous tubercle bacilli. The voice was lost, because the throat and vocal chords were involved. The temperature ranged from 97° to 102°F.; weight diminished from 148 to 96 pounds; the pulse rate was from 98 to 126 per minute; respirations were from 22 to 32 per minute. She had had eighteen months' institutional care, with continued gradual decline.

Smallpox toxin was administered daily by subcutaneous injections, the initial dose being 2 minims. The dose was increased 2 minims each day until 1 cc. was given, and was then held at 1 cc. over a period of fourteen days, after which a rest period of seven days was observed, following which the toxin was administered for another fourteen days, beginning the course with 0.5 cc. and increasing 4 minims each day until 1 cc. was given. The periods of rest and administration were alternated for a period of 28 weeks.

Following the administration of the toxin the patient experienced pains in the limbs, back and head, very similar to those complained of by one coming down with smallpox infection, though not so severe. These symptoms were present following the first two or three injections of each series.

The temperature was increased from 0.2 to 2.1 degrees following some of the injections, and the fever continued for about four hours.

The pulse rate was increased but little after any injection, and was decreased a few beats for three or four hours following almost every injection.

The amount of sputum expectorated was almost doubled during the first three days of the treatment, after which there was a rapid decrease.

The respirations were increased, during the first three days of treatment, to 26 to 34 per minute, attributable, probably, more to the decrease of air space, due to the increased material to be expectorated, than to any direct effect of the toxin.

At the end of the rest period following the

first series of injections, it was obvious that the patient was making physical improvement. Following each series of injections the improvement was unquestionable. The reactions produced by the toxin decreased as the tolerance for it was established, and improvement progressed during the periods of administration quite as rapidly as during the periods of rest. The sputum gradually decreased and was scant at the end of the fourth month, at which time there were no tubercle bacilli to be found in it, and none have been found in it since, though repeated examinations have been made.

Since the end of the sixth month there have been no pulmonary râles characteristic of the infection, and the respirations, when counted, have not exceeded 26 per minute (they range from 20 to 26).

It has been stated that the heart is the truthful barometer in tuberculosis. It certainly was in this case. It presented a progressive return to normal character of action from the end of the eighth month.

It has been more than six years since the treatment was discontinued, during which time there have been no demonstrable symptoms of the infection.

**Case No. 4:** Male, 32 years of age, had had tubercle bacilli in his sputum for seven years and presented ranges of temperature, respiration and heart action typical of tuberculous individuals. Characteristic râles were present in the superior lobe of each lung.

He received daily injection of the toxin, beginning with a 2-minim dose and increased by 2 minims at each dose till 32 minims (2.0 cc.) were administered, at which dose the treatment was continued. The total number of injections given him was 64, following which he took a vacation from the town for three months. Examination of him on his return did not reveal any symptoms of active tuberculosis. It has been more than six years since he received any treatment and there are still no demonstrable symptoms of tuberculous infection.

The effect of the toxin on temperature, respiration and heart action presented nothing of special interest. He ached quite severely following the first few injections and the sputum was increased during the first few days of treatment, then rapidly decreased.

**Case No. 7:** Male, 23 years of age. A positive diagnosis of pulmonary tuberculosis was made three months prior to the beginning of the administration of the toxin. The tuberculous infection had followed a severe attack of influenza, which had left him greatly depleted.

The toxin was started by giving 2 minims, and was increased 2 minims at each dose until 24 minims were given at each dose, and continued daily until it had been administered for 29 days. A fourteen-day rest period was observed and it was again administered for 21 days.

The amount of sputum expectorated was increased over a period of six days, after which it rapidly decreased and was not present after the rest period. There was a varying amount of aching of the limbs and head after each of the first few injections; the temperature

rose 0.2 to 0.8°F. after the injections and fever lasted from one to three hours.

The heart beat was changed but little; following some injections it increased from two to five beats and following others it decreased from two to five beats.

Sixty days after the second course of treatment, no activity could be demonstrated. Six years have now elapsed and no active tuberculous infection can be detected.

**Case No. 9:** Male, 19 years of age. A positive diagnosis of tuberculosis was made two months prior to the beginning of the administration of the toxin. The tuberculous infection had followed a depleting attack of influenza.

The toxin was administered by starting with a 2-minim dose, increased 2 minims each dose until 24 minims were given at each dose, and continued daily until it had been administered for thirty days; then a twenty-one-day rest period was observed, after which the toxin was given twice a day for fourteen days.

The amount of sputum expectorated was increased during the first twelve days, after which it decreased, and was negligible at the end of the second course of injections. The temperature showed an increase above normal from 0.2° to 1.5°F. following the injections.

Sixty days after the second course of injections, there were no demonstrable symptoms of the infection. More than five years have now passed and no active tuberculous infection can be apprehended.

**Case No. 15:** A male Indian, 18 years of age. Tuberculous infections, involving the apices of both lungs and the cervical glands, were present. His afternoon temperature showed an elevation of from 1° to 1.5°F. He had lost ten pounds weight, was more than usually lethargic and had shortness of breath, with a respiratory rate ranging from 24 to 30. He had a moderate cough, expectorated a moderate quantity and the sputum contained tubercle bacilli. His pulse rate ranged from 86 to 116 per minute. His red-cell count was normal, with hemoglobin 65 percent.

Smallpox toxin was given, by hypodermic injection, three times a week. The initial dose was 2 minims; each dose was increased by 2 minims until 1 cc. was given. When a 1 cc. dose was reached, the temperature rose to 101.5°F. The size of the dose was not further increased, but there was approximately the same increase following three consecutive doses, after which there was a gradual reduction in the amount of increase following the injections.

The treatment was continued over a period of a little more than five months, during which time he had five periods of rest, ranging from one week to sixteen days. At the end of the treatments the afternoon temperature was 0.5°F. subnormal. He had gained 13 pounds in weight; shortness of breath was barely noticeable; the respiratory rate ranged from 22 to 27; he had very little cough, ex-

pectorated very little, and the sputum did not contain tubercle bacilli. His pulse rate ranged from 76 to 82 and his hemoglobin was 80 percent. The cervical glands were reduced in size from one-third to one-half.

The patient, on discontinuing treatment, moved away, but reports were received from him relative to his condition occasionally, over a period of about one year. So far as he could determine he had no symptoms of the infection.

**Case No. 16:** Male, 29 years of age. Had had an active tuberculous infection over a period of about three years. The sputum was very profuse, contained many tubercle bacilli, and he had a severe cough. The upper lobes of the lungs contained large cavities; the temperature was occasionally as high as 103.5°F.; weight was decreased from 155 to 96 pounds; pulse rate ranged from 100 to 136; respirations ranged from 28 to 40; the hemoglobin was 60 percent.

Smallpox toxin was given in approximately the usual way. There was no detectable effect from its use: The patient expired in twenty-six days. The physical findings made the case appear hopeless from the start.

**Cases No. 18 and 24:** In the series of the first 25 cases, cases 16, 18 and 24 presented very similar conditions. No. 18 expired in 85 days and No. 24 expired in 62 days. They were practically moribund when first seen. In these, as in Case No. 16, there was no detectable effect from the use of the toxin.

Cases of the series not reported presented varying systemic results following administration of the smallpox toxin. Some had no rise in temperature, aching or effect on pulse rate. The most universal symptom was an increase in the amount of sputum expectorated for a few days.

### Conclusions

1.—The present recorded observations indicate that smallpox infection, in individuals with tuberculous infections, has a beneficial result toward relieving them of these infections.

2.—Others, who have made observations relative to the effect of smallpox infection on people with tuberculous infections, would add to the scientific records in the matter by reporting their observations.

3.—The toxin from smallpox vaccine exerts a beneficial effect toward clearing up tuberculous infections.

4.—It would add to the scientific evidence in the matter if competent men would observe the effect on tuberculous individuals of toxin extracted from smallpox vaccine.

5.—The effect of toxin extracted from smallpox vaccine has an interesting effect toward the immunization against smallpox, which will be reported at a later date.

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# Hernia Through The Broad Ligament

By John E. Stoll M.D., Chicago

**H**ERNIATION of the small bowel through an opening in the broad ligament is not a very common finding. Comparatively few cases have been recorded. Some cases have been diagnosed post mortem, while others have been found at operation, the diagnosis of which had not been made preoperatively.

Quain<sup>1</sup> reported a case of a para V, age 36 years, who presented the symptoms of a strangulated hernia, although there was no swelling nor tenderness at the usual sites of hernial protrusion. The patient soon developed signs of peritonitis, followed by collapse and death. At autopsy the picture was that of an intestinal obstruction. The uterus was found lying high above the bladder, with the right cornu drawn up towards the spine. On further examination it was found that the right broad ligament was firmly fixed by old adhesions to the mesentery: further, there was a fissure in the broad ligament, through which the discolored loop of bowel had been forced by peristaltic action until its limit was reached, the slit-like opening was forced tight shut by the weight of this loop of bowel, and strangulation ensued.

Barnard<sup>2</sup> stated that a case of intestinal hernia in the broad ligament was exhibited in the museum of the London Hospital.

Fagg<sup>3</sup> reports two cases. His first case was that of a para V, age 61, with sudden onset of symptoms which were those of either twisted ovarian cyst, strangulated obturator hernia or mesenteric thrombosis. On operation, a loop of bowel was found herniated from behind forwards, through a hole in the left broad ligament, just below and median to the ovarian ligament. The bowel, slightly discolored but viable, was released and the opening in the broad ligament closed. Three months later the patient returned with similar symptoms, but on operation a portion of bowel was found to be adherent to the scar, the broad ligament not being involved. One year later the patient was reported still in good health.

His second case, a nullipara, age 49, presented symptoms which led to a diagnosis of acute appendicitis. On operation the substance of the broad ligament appeared to contain a cyst, but which was found to be a loop of bowel protruding through from behind. The bowel was released by cutting through the upper margin of the orifice. It could be demonstrated that this pouch was above the ovary and its ligament and, by the division of this neck, the pouch was converted into a shallow fossa. The patient made a good recovery.

Barr<sup>4</sup> mentioned the fact that the only

reference he found was by Moynihan, who stated, "The occurrence of this type of hernia has been observed." In Barr's case, a para VII, age 44, a diagnosis of acute gall-bladder disease had been made. Later the symptoms became such as to suggest some form of bowel obstruction. On operation, a loop of bowel was found herniated through a hole in the left broad ligament. The opening was enlarged digitally and the bowel freed. The patient made a good recovery.

Pidcock<sup>5</sup> investigated the bodies of ten adult, parous women, and in every case it was possible to stretch the round ligament forward and to demonstrate a thin, apparently avascular fold of peritoneum joining it to the main part of the broad ligament. On no occasion did it require any real force to perforate this "meso-ligamentum teres," thus favoring internal herniation of the bowel at any time.

Dornan<sup>6</sup> reported on a patient who had been operated upon nine years previously for a left femoral hernia, with good recovery. The presenting symptoms were those of intestinal obstruction. On operation, the obstruction was found to be a loop of ileum, strangulated at the neck of a peritoneal invagination into the posterior aspect of the left broad ligament. The neck of the sac was incised, releasing the bowel which could not be withdrawn otherwise, and was sewn up thereafter. The patient made an uneventful recovery.

Janes<sup>7</sup> reported two cases. His first case, a 58-year-old, parous woman, showed obvious symptoms of intestinal obstruction. On operation, a loop of bowel was found to have passed through a hole in the left broad ligament, from in front, and lay, for the most part, in the pouch of Douglas. The opening was below the round ligament and fallopian tube, immediately lateral to the uterine vessels. The opening was enlarged digitally and the bowel freed. No sac was present and the margins of the opening were approximated with catgut. The patient made a good recovery.

His second case was in a 36-year-old, para VII, with intermittent symptoms of intestinal obstruction of three months duration. In spite of a marked heart disorder, it was decided to operate. On operation, the imprisoned bowel was freed by gentle traction before the pathologic position could be noted. The bowel showed signs of having been obstructed, but was viable. The patient's condition permitted no further work and the operation was completed. The patient died seventeen hours later and, on autopsy, an

opening in the broad ligament, on the left side, was found, with a double margin which was quite thin. There was no pouch.

Caplan<sup>8</sup> reported that a normal married woman, age 56, had been operated upon three years previously and a gastro-enterostomy performed. When seen she presented symptoms diagnosed as acute appendicitis or an alternating intestinal obstruction, due to a band. On operation, a loop of bowel was found protruding through an opening in the right broad ligament between the ovary and the uterus, one-half inch below the fallopian tube. The edge of the opening was firm and white and apparently was of long standing. Strangulation was relieved and the opening abolished by dividing the fallopian tube and the portion of the broad ligament between the tube and the opening. The patient made a good recovery.

Cooper<sup>9</sup> reported on a 70-year-old multipara, with symptoms of abdominal pathosis located about one inch below McBurney's point. On operation, the picture of a bowel obstruction presented itself. It was found that the bowel had herniated from the posterior aspect through a hole, the edges of which were thin and friable, in the right broad ligament. The right tube was compressed by the strangulated bowel and was almost gangrenous. The bowel was freed by removing the tube and was found to be viable. The patient made a good recovery.

#### Case Report

My patient, Mrs. B.C., a married nullipara, age 35, had been operated upon ten years previously, but she had no information as to the findings. Following the operation she had been perfectly well, except that she tired easily and, four years before I saw her, her menses ceased. Three days before I was called she was seized with an attack of vomiting, diarrhea and very severe, constant, sharp pain, low down in the abdomen just above the symphysis, associated with terrific backache in the lumbar region, but most marked on the left side of the back. The patient applied heat and remained in bed. At first the condition grew worse, but later in the day she felt a little better. On the second day she felt slightly better; but on the third day she took a very hot douche, which seemed to start the symptoms again, only to a more marked degree.

The abdomen was moderately distended and generally tender, but especially so in the lower half. There was an old healed, lower-midline incision scar 8 cm. long and 1.5 cm. wide, extending upward from just

above the symphysis. There was no palpable separation of the underlying muscle layer. Vaginally, the cervix was firm and conical, with a very small, palpable os. The uterus was movable and very painful in the region of the adnexa. On the right and left sides there was an ill-defined mass, which was moderately movable with the uterus, very tender, not stony in hardness, but did not appear to contain fluid.

At operation the old scar was dissected out. There was no free fluid in the abdominal cavity and the loops of bowel were not pathologic in size, although the mass of bowel could not be removed from the pelvis. On examination it was found that a loop of small bowel had passed through an opening 2 or 3 cm. in diameter in the left broad ligament, from behind forward, and was held in place by rather dense, fibrous adhesions, which were dissected away. A nick was made in the surface of the adhesions and they were then removed easily by blunt dissection. The restraining adhesions having been removed, the loop of bowel slipped out almost by its own weight. The edge of the opening was thickened, and it was closed by imbrication.

Thirty (30) cm. distally there was found a second loop of small bowel, herniated through an opening 2 cm. in diameter in the right broad ligament. The same picture was seen here as on the left side, and the same procedure was followed. At no places were there any pathologic findings in the bowel wall. In the previous operation the patient had had the tubes, left ovary and appendix removed. The uterus was infantile in type. The patient made an uneventful recovery and over a year and a half later she reports that she has never felt so well in her life.

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# The A - B - C of Cancer

## 7. Tumors of the Thyroid Gland\*

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THE thyroid gland develops from a major median component and two lateral components. Connection of the median component with its primary site of development in the pharynx, at the base of the tongue, is formed by the thyroglossal duct, which disappears eventually, under normal conditions, but may leave one or more pyramidal processes. Fusion of the lateral components, derived from the entoderm of the fourth pharyngeal pouch, with the median component occurs early (in about 13 mm. embryos) under normal conditions, although the lateral portions lag behind the median in differentiation and, under abnormal conditions, may remain closely associated with parathyroid tissue (Weller<sup>1</sup>).

**Aberrant Thyroid Tissue:** Aberrant thyroid tissue may be found in varying places in the neck or upper mediastinum. The major portion of the thyroid tissue may form a nodule at the root of the tongue, at the level of the foramen cecum. In such cases of lingual thyroid tissue no symptoms may be present other than the tumor at the base of the tongue, or idiocy with severe myxedema may be present (MacCallum and Fabry<sup>2</sup>). It is important, in attempting the excision of mid-line tumors between the hyoid bone and tongue, to remember that biopsy is essential before complete extirpation. If the tumor proves to be aberrant thyroid tissue in such a location it may constitute the entire mass of functioning thyroid and its removal may be followed by myxedema.

Swellings in the lateral portions of the neck may also be caused by aberrant thyroid tissue. The histologic structure of such tissue is usually very irregular, some of the acini being fetal in type, others distended with colloid. Both benign and malignant tumors may occur in such aberrant tissue.

**Thyroglossal Duct Cysts:** These cysts occur in the mid-line of the neck, producing symptomless swellings. Their growth is slow. Rapid enlargement may be caused by sudden accumulations of secretions or by infection. Histologically these ducts are usually derived from the lingual portion of the thyroglossal duct and are lined by squamous or ciliated epithelium. Rarely they are derived from the thyroid portion of the duct and lined by fetal thyroid tissue. Both types are most often situated beneath the hyoid bone with an extension through this structure toward the tongue, their complete surgical removal necessitating bisection of this bone.

**Fetal Adenomas of the Thyroid:** Several varieties of adenomas in the thyroid have been described. The so-called toxic adenoma is not a true neoplasm but a portion of the gland which has undergone hyperplasia,

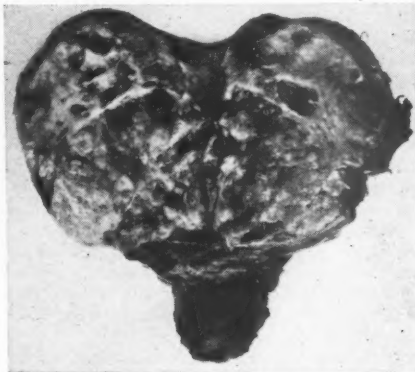


Fig. 1.—Path. No. 7967: Fetal adenoma of the thyroid gland.

complicated by involutional changes. Reinhardt<sup>3</sup> estimates that only ten percent of these so-called thyroid adenomas are true neoplasms, to be distinguished by the term fetal adenoma. Such fetal adenomas, however, are not uncommon. In the gross they are circumscribed and encapsulated and under the microscope composed of narrow strands of small epithelial cells, forming minute acini not arranged in typical lobules and without colloid content except in an occasional large acinus. The stroma about these fetal epithelial elements is abundant and contains many small blood vessels. Although usually benign and without symptoms, these fetal adenomas may be the seat of toxic hyperplasia or carcinomatous changes.

**Hürthle Cell and Langerhans Adenomas of the Thyroid:** In 1892, Hürthle<sup>4</sup> described islands of tissue in the thyroid resembling, histologically, the parathyroid glands. Typical adenomas composed of these sheets of cells with clear cytoplasm and small nuclei, without typical acini, occur in rare instances. Signs of proliferation and extension in such clear-cell adenomas may be followed by recurrence after excision. In these clear-cell tumors, however, metastases have not been recorded. Although the cells resemble parathyroid tissue and the adenomas form in the lateral portions of the gland (either from the lateral thyroid component or the parathyroids, which are closely associated with

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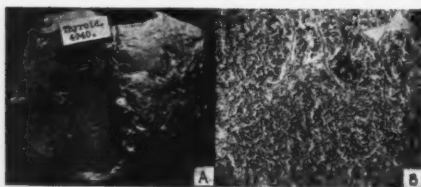


Fig. 2A and B.—Path. No. 4940: A gross and B photomicrograph of adenoma of the Langan's type undergoing malignant change.

the lateral components), symptoms of parathyroidism do not occur. Elevations of the blood calcium and atrophy of the bones have not been found in these cases.

Adenomatous areas within the thyroid gland, composed of sheets of cells with somewhat large nuclei and granular cytoplasm, have been described by Langan's. In the literature no distinction is usually made between these granular Langan's adenomas and those with clear cells of the Hürthle type. However, Langan's adenomas are more common and these granular-celled tumors are far more often the seat of malignant change, with extension and distant metastases, than those of the clear-cell type.

**Papillary Cystadenoma:** Like fetal adenomas, these benign papillary tumors are sharply circumscribed and have a fibrous capsule. Papillomatous projections, lined by low columnar epithelium, project into cystic areas and the surrounding tissue contains many dilated acini and an increased fibrous stroma. These tumors produce an asymmetrical enlargement of the thyroid and, if showing signs of progressive growth, have usually undergone malignant change. The histologic evidences of such malignant change, however, are extremely difficult to demonstrate unless invasion of the blood vessels has occurred.

**Carcinoma of the Thyroid Gland Arising in Adenomas and Papillomas:** Carcinoma of the thyroid gland may arise in any of the benign forms of tumors described above, including aberrant thyroid tissue, thyroglossal duct cysts, fetal and Langan's adenomas and papillary cystadenomas. The most common forms of thyroid malignancy arising secondary to benign neoplasms are those occurring in papillary cystadenoma and fetal adenoma.

Papillary cystadenocarcinoma develops in a pre-existing benign cystadenoma of many years' duration. Several previous recurrences may have taken place before definite malignant infiltration can be demonstrated. The regional lymph nodes may be involved, but distant metastases are rare. The duration of the disease, following primary excision, varies between five and ten years. Under the microscope the structure of the malignant cystadenoma is difficult to distinguish from the benign. The papillary projections are covered

with benign cuboidal or columnar epithelium and at one or more points extension through the basement membrane or rupture of the capsule may be observed. Regression may occur following irradiation in the large malignant growths of this type. For the smaller growths that have become firm and fixed, excision should be performed. About one-fourth of the cases are permanently cured.

Malignant adenomas and adenocarcinomas are the most frequent forms of thyroid cancer. The origin of many of these tumors in benign adenoma is indicated by the persistence of an adenomatous structure difficult to distinguish from the benign form. Graham<sup>5</sup> has suggested that in this form of carcinoma invasion of the blood vessels by the tumor cells is the most reliable index to malignancy. In many cases the metastases from these tumors tend to revert to the benign adenomatous form. The tumor grows in cords or sheets, separated into alveolar masses in which many typical acinar structures are found. The more malignant growths are characterized by numerous mitotic figures and a diffuse proliferation of cells. The majority of these tumors recur promptly after excision and metastasize via the lymphatics and the blood stream.

Irradiation may cause regression of these growths but is insufficient for permanent cure. In the malignant adenomas of the Langan's type, characterized by sheets of granular cells rather than by an acinar arrangement, irradiation is apparently more successful (Haagen-sen.<sup>6</sup>). These carcinomas of the Langan's type are to be distinguished, not only by their histologic character, but also by their tendency to occur in a gland formerly the seat of hyperthyroidism.

**Diffuse Carcinoma of the Thyroid (so-called Sarcoma):** Highly malignant forms of thyroid cancer have been described in the early literature under the impression that they were sarcoma. Rapidly proliferating cancers of this organ may approach spindle-cell sarcoma in type. Others, with a diffuse proliferation of small cells, may resemble lymphosarcoma. A very bizarre form of malignancy, characterized by a great variation of cell forms with numerous tumor giant cells, has been described as giant-cell carcinoma. All three of these forms (spindle-cell, small-round-cell and giant-cell carcinoma) grow rapidly, metastasize early and have an extremely grave prognosis. Cures by either surgery or irradiation are practically unknown.

**Metastatic Carcinoma and Sarcoma:** Willis<sup>7</sup> was able to collect and study 57 metastatic tumors of the thyroid, including 15 originating in the breast, 9 melanomas, 8 bronchiogenic cancers, 4 from the uterus and 3 from the kidney. Epidermoid carcinomas arising in thyroglossal duct cysts (Cadéras<sup>8</sup>) or in em-

bryonal vestiges of the duct may also invade the thyroid. Palliative irradiation should be tried in these conditions.

Sarcoma of the thyroid is now looked upon as a very rare condition and most of the pleomorphic tumors are regarded as carcinomatous. The spindle-cell sarcoma of this organ may be associated with cartilage and bone formation. Broders and Pemberton<sup>9</sup> have recently reported such a case and cited four additional cases in the literature. A typical osteogenic sarcoma of the thyroid has also been studied in this laboratory. Apparently these tumors are sarcomatous rather than teratomatous in nature.

**Socalled Benign Metastasizing Goiter and Struma Ovarii:** Thyroid tissues of apparently benign character may be found in both the bones and in the ovary. The dissemination of such tissue led earlier authors to postulate the existence of benign metastasizing goiter.

It is now generally agreed that thyroid tissue in the skeleton metastasizes hence, through the early invasion of blood vessels by tissue from small malignant adenomas in the thyroid gland. Such a small primary focus may escape clinical detection. The tissue in these cases shows a marked tendency to differentiate toward normal thyroid structures, but is of cancerous origin.

A somewhat different problem arises in accounting for thyroid tissue resembling colloid goiter, which may occur in the ovary. Apparently the focus of origin is in a dermoid cyst or teratoma of the ovary, which shows a marked tendency to differentiate in this direction. Both benign and malignant forms of ovarian tumors, containing large amounts of thyroid tissue, have been described. The benign type, forming a relatively large encapsulated mass, is most frequent. These growths are treated by excision and have the same prognosis as ovarian cysts of the dermoid or teratoma type.

#### Diseases of the Thyroid

The most important diseases of the thyroid gland are the functional hypertrophies and hyperplasias of this organ. Infections are rare, but certain typical sclerosing processes, resembling tuberculosis, produce quite characteristic clinical pictures in this gland.

**Colloid Goiter:** This form of goiter, which is also termed simple or endemic goiter, is prevalent in certain regions and shows a definite geographic distribution. Deficiency in iodine intake results in this characteristic compensatory hypertrophy and it has been shown in extensive experiments that the administration of iodides twice a year for two weeks will prevent this form of goiter in regions where it is prevalent. Simple goiter usually occurs at puberty and may grad-

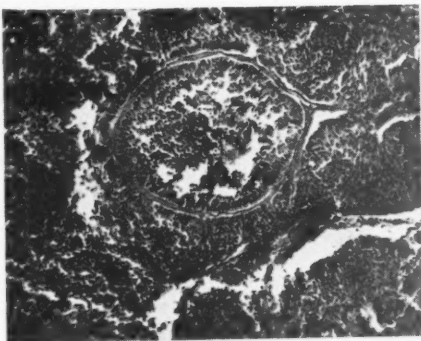


Fig. 3.—Path. No. 7003: Photomicrograph of diffuse carcinoma of the thyroid simulating spindle-cell sarcoma.

ually increase to an immense size. The acini of the glands become distended with colloid and the epithelium is low and flattened. Frequently the mere size of these goiters is sufficient reason for their removal. In some of these goiters, in which enlargement has been recent, the gland may be shrunken by the administration of thyroxin. The basal metabolic rate is usually subnormal or normal.

**Exophthalmic Goiter:** This form of enlargement of the thyroid gland is characterized by exophthalmos, tachycardia, tremor, loss of weight, sweating, diarrhea and an increased basal metabolic rate. Eye signs are usually present. The gland is generally enlarged, but not necessarily so. The administration of Lugol's solution in such cases tends to change the hyperplastic thyroid tissue into the colloid state. In exophthalmic goiter not thus treated, the gland shows a tall, columnar epithelium, with many papillary infoldings, with little or no colloid present in the acini. The symptoms are allayed for short periods by the administration of Lugol's solution. The administration of iodine in this form, plus rest in bed and increased diet, are the ideal pre-operative procedures, preceding a sub-total surgical removal.

**Socalled Nodular or Toxic Adenoma:** Chronic enlargement of the thyroid gland, present since puberty and giving rise after many years to the symptoms of exophthalmic goiter, is a form of hypertrophy of this organ which has occasioned much dispute among students of the thyroid. Plummer has held that this is a clinical form of goiter, in which the administration of iodine is contraindicated. Reinhoff has held that such goiters are merely the result of a chronic hyperplasia akin to exophthalmic goiter, in which the stages of hypertrophy and hyperplasia have been interrupted by periods of involution toward the colloid state. He recommends that they be treated for

their toxic symptoms on the same basis as that used for typical exophthalmic goiter.

**Chronic Idiopathic Thyroiditis:** Chronic inflammation of the thyroid gland, leading to a stony-hard sclerosis of thyroid tissue, was first described by Reidel in 1896 and is usually known by his name. The gland is enlarged and increased in density and adherent to the surrounding structures. There are no symptoms produced in these cases except by the pressure and adhesions. The disease is difficult to distinguish from carcinoma. Microscopically the thyroid shows an increased number of lymphoid follicles, increased amount of fibrous tissue and areas of hyalinization, with clusters of giant cells. Calcification may occur. The etiology of the condition is subject to much dispute. Some believe that the disease is due to tuberculosis; others that the two are separate conditions, resembling each other clinically

and pathologically. The condition is treated by sub-total thyroidectomy.

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## Vitamin C (Ascorbic Acid)

By Edmond E. Moore, Ph.D., Lake Bluff, Ill.

**SCURVY** is one of our oldest known diseases. It was the first disease whose cause was recognized to be an incomplete diet. When the term "vitamin" was coined, the factor which could prevent or cure scurvy was designated as vitamin C. Yet, until very recently this vitamin, the first whose physiologic action was recognized, defied all attempts at isolation and identification.

In 1923, Szent-Györgyi<sup>1</sup>, who was working on the oxidation mechanism in plants and animals, isolated from the suprarenals a remarkable compound. It had the formula  $C_6H_8O_6$  and in other ways was like the known six-carbon sugar acids. Its most striking property was an unusual reducing power. He named it hexuronic acid. Tillmans<sup>2</sup> observed that there was a close relationship between the reducing power of fruit juices and their antiscorbutic value. It was not until 1932 that King<sup>3</sup> reported the isolation of pure crystalline Vitamin C from lemon juice. Further work showed that this is identical with the so-called hexuronic acid, which Szent-Györgyi had isolated from the suprarenals. Shortly after King's paper appeared, Szent-Györgyi reported<sup>4</sup> that his hexuronic acid was vitamin C. Thus, two investigators independently discovered the most elusive of the vitamins at almost the same time. The name was later changed to ascorbic acid, by agreement of those doing research in this field. Their announcements stimulated research along many lines: (1) Search for rich natural sources of the vitamin and methods of isolation from these sources; (2) proof of its structure; (3)

synthesis; (4) pharmacological and clinical effects.

Vitamin C occurs in relatively large quantities in all fruits, vegetables, and green leaves. The quantity present changes with the season. In fruits, it increases with maturity, while in leaves it becomes less. Orange juice, which is the most highly advertised source of vitamin C for human consumption, contains 0.6 mgm. of ascorbic acid per gram of juice. Ripe (red) sweet peppers may contain four times as much. The same pepper before ripening, however, may have only a trace of the vitamin. Lawn grass is as rich in vitamin C as is orange juice, while the maple leaf is twice as rich.

Natural plant or animal materials contain many other compounds which may seriously interfere with the isolation of pure vitamin C. Because of its peculiar properties, isolation of the vitamin requires many steps, in any of which a large part or all of the vitamin may be destroyed unless proper precautions are observed. It is, therefore, fortunate that there is available a simple chemical method for estimation of the quantity of vitamin present at each step. Because of its powerful reducing properties, the vitamin may be estimated by titration with certain mild oxidizing agents. Iodine has been used for this purpose, but 2,6-dichlorophenol indophenol has been found to be more specific and to give more accurate results.

The development of a simple chemical method for estimation of vitamin C has made it possible for anyone with ordinary labora-



tory facilities to determine the amount of the vitamin in any natural materials.

Using the methods proposed by King and by Szent-Györgyi, it has been possible for workers in other laboratories to prepare small amounts of pure crystalline vitamin C. However, the cost of production at present is so high as to preclude the widespread use of the pure vitamin, when it can be so much more cheaply obtained by the normal individual from a proper diet of fresh fruits and vegetables.

Vitamin C is not a true hexuronic acid, and this fact is responsible for the change of name to ascorbic acid.

Credit for the synthesis of ascorbic acid must be divided between the Haworth group and Reichstein's workers in Switzerland. Reichstein first synthesized the physiologically inactive optical isomer of ascorbic acid, starting with l-xylose. Using the same method, but starting with d-xylose, Haworth's workers obtained the physiologically active l-ascorbic acid. The method of synthesis used by these workers is too expensive to be of practical value. However, simpler methods of synthesis and the synthesis of similar compounds which may have antiscorbutic activity, are being investigated. It is entirely possible that before long we will have a synthetic anti-scorbutic compound which can be produced for a reasonable cost.

Certain races, for example the Eskimo, can not secure much vitamin C in the diet, yet they are relatively free from diseases caused by deficiency of this vitamin. Hanke<sup>8</sup> concludes that certain races and probably certain individuals in all races are able to synthesize at least a part of their requirements. Dogs, rats, chickens and some other animals can synthesize enough vitamin C for their needs. Others, including man, can not. The guinea-pig has been used in research on experimental scurvy because it reacts to diets low in vitamin C very much as does man.

The total ascorbic acid stored in the body of animals which can not synthesize it is very low. It represents only two or three days' requirements. When the animal is placed on a vitamin C-free diet, the rate of depletion of the different tissues is rapid, being greatest for those having the highest content. The time required for development of symptoms of scurvy is much greater.

Findlay<sup>9</sup> gives as the important pathological change in experimental scurvy a swelling of the endothelium, as a result of which the flow of blood through the capillaries is retarded and extreme congestion results. The degeneration of the endothelium damages the intercellular substance, as a result of which edema and hemorrhage occur, while stagnation of the blood results in deficient oxygenation of the tissues.

The influence of Vitamin C upon dental

health has been exhaustively studied by the Chicago Dental Research Club and a detailed report of their findings, edited by Dr. M. T. Hanke, has been published.<sup>8</sup>

The biologic assay for vitamin C depends upon the changes brought about in the teeth of guinea pigs by inadequate quantities of ascorbic acid in the diet. Hanke reports that microscopic changes occur in the teeth before they can be observed in any other body tissue.

Göthlin<sup>7</sup> has devised a very ingenious method of measuring vitamin C, based upon the strength of the cutaneous capillaries. He applies a pressure of 50 mm. mercury to the veins of the upper arm for 15 minutes; then counts the number of petechiae within an area of 60 mm. diameter, whose center is in the hollow of the elbow. Using Göthlin's method, Gedda<sup>8</sup> found an increase of nearly 100 percent in the number of petechiae in a group of normal students who were tested, first in September, then in May. He attributed lowered strength of the cutaneous capillaries in the spring to the lower vitamin C content of the diet in the winter.

The protective dose of ascorbic acid is relatively large for a vitamin. One cc. of orange juice contains 0.6 to 0.7 mgm. of ascorbic acid. There is much difference of opinion as to what constitutes a protective dose of orange juice.

Hanke found the daily administration of a pint of orange juice and the juice of one lemon very beneficial to the dental health. This was with children who had what might be considered an adequate diet without the orange juice. Three ounces a day were found to be insufficient. The other limit is perhaps that of the British navy, where an ounce (30 cc.) of orange juice daily is considered sufficient.

Schultzer<sup>9</sup> reports a case of an adult with typical advanced scurvy. He administered daily intravenous doses of 40 mg. of ascorbic acid. Marked improvement was evident after the fifth dose. After the tenth day, the dose was given only every second day. In twenty days, the patient was practically well. These results are especially interesting when one considers that 40 mg. of ascorbic acid is equivalent to only two ounces of orange juice. It is, of course, reasonable to assume that an equal dose of ascorbic acid would be more effective when given intravenously, since the vitamin is very unstable in alkaline solution and, after oral administration, must be partially destroyed in the intestine before it can be absorbed.

The upper limit of tolerance of the human being for ascorbic acid is not known, but it is certainly very high. Kramer<sup>10</sup> studied the effect of pure crystalline ascorbic acid on new-born normal and premature infants, and found no sign of intolerance to doses of 15

to 50 mg., even under circumstances which would forbid the use of fruit juices as a source of vitamin C.

While the chemical composition of vitamin C (ascorbic acid) is definitely known, there still remains open a fertile field for research in the development of methods for its more economical production. A study of its clinical effects in a variety of conditions may prove the isolation of ascorbic acid to be one of the most important and far reaching contributions to medical science.

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## Notes from the A. M. A. Meeting

Reported by George B. Lake, M.D.,  
Waukegan, Ill.

THE first article on page 1, Vol. 1 of the *Journal of the American Medical Association*, dated July 14, 1883, is entitled, "Minutes of the American Medical Association at its 34th Annual Session, held in Cleveland, O., June 5, 6, 7, 8, 1883." And the Association hasn't held a meeting in Cleveland since, until this year. At that former Cleveland meeting, Dr. William Osler represented the Canadian Medical Association.

This year's meeting was one of the best in years. The registration was well over 6,000, which figure has been exceeded at only three previous sessions; the exhibits, both scientific and technical, were unusually extensive and diversified; the Cleveland Public Auditorium is big enough to house all the many activities of the Association; the program was at least as good as the average; and the weather was perfect the whole week. Moreover, there was a general feeling of optimism which has been lacking the past four or five years.

#### Business—The House of Delegates

The business of the A. M. A. is conducted solely by the House of Delegates, and their action which caused the most comment was a strong declaration against socialized medicine, with a slap at the American College of Surgeons, which a day or two previously had promulgated a Board report favoring sickness and hospital insurance. This Report is published elsewhere in this issue, so that those who are interested can see just how heinous it is. A study of the "Ten-Point Platform" of the A. M. A., as reported in the *Journal of the A. M. A.*, June 30, does not, however, seem to differ from it very widely, in its basic elements, except that it says nothing, directly, about insurance.

Resolutions were adopted condemning the radio practice of medicine; changing the Code

of Ethics so as to make medical "clinics" and "groups" amenable to the same restrictions as are imposed upon individual physicians, and declaring it unethical for a doctor to sell his services to a lay group operating for profit; declaring that recognition of a hospital for the training of interns will depend on its excluding from its staff all physicians who are not members of their county medical societies (a bit of strong coercion); and covering many other matters of minor general interest.

The delegates from several states presented resolutions calling for the appointment of a committee to make a thorough study of the whole question of birth control and bring in an authoritative report. The reference Committee on Hygiene and Public Health refused to make a recommendation, and the House of Delegates laid these resolutions "on the table," apparently feeling that it is better for the Association to have no official opinion on a subject of vital interest to all physicians, or to express an opinion without having any valid knowledge to back it; which latter course is not wholly without precedent.

The new president-elect is Dr. James S. McLester, of Birmingham, Ala., professor of medicine at the University of Alabama School of Medicine.

Next year's meeting will be held at Atlantic City, New Jersey.

#### Scientific Exhibit

The scientific exhibit grows, in size, in diversity and in educational value, every year. The addition of moving picture demonstrations has been a big improvement, and the exhibitors are learning how to make their presentations more interesting and instructive. The only trouble is that one has so

little time to study all the showings as fully as they deserve.

One wonders why it would not be possible to keep an exhibit like this set up permanently somewhere, so that doctors could come, for a week or a month or more, to really absorb the immense amount of scientific and technical information which is set forth. A nominal fee could be charged—enough to take care of the cost of keeping the exhibits open—and a really valuable medium for graduate instruction made available, at minimum expense to the student.

The gold medal in Class I (original investigation) went to Dr. Gregory Schwartzman, Mount Sinai Hospital, New York, for studies of skin reactivity to bacterial filtrates; and in Class II (excellence in correlation and presentation of known facts) to Drs. Bates, Getz, Icaza and James, of Panama City, C. Z., for their presentation of amebiasis. Special commendation was given to the exhibits illustrating the symposium on the treatment of burns, sponsored by several sections of the Association—a really splendid practical demonstration.

Among the exhibits which, while perhaps not being of the highest scientific importance, were most talked about or of most practical interest to general clinicians, a few will be mentioned.

Dr. Edson B. Fowler, of the Department of Anatomy, Northwestern University, Chicago, showed how he makes internal splints, for the open treatment of fractures, out of long sections cut out of cow horns. The method is so simple and practical that any reasonably expert surgeon ought to be able to use it successfully. The splints are somewhat resilient and absorbable, liberating a histidin-like substance in their disintegration, which appears to stimulate the formation of callus. The doctor, himself, made all the necessary appliances in his private workshop at home. He has promised to write an article about it for "C. M. & S."

Dr. R. N. Harger, of the University of Indiana, Indianapolis, exhibited an animated model of his "drunkometer"—a readily portable apparatus which will quickly show the percentage of alcohol in a person's breath. From these figures, the percentage in the blood can be calculated with surprising accuracy and an index of the degree of intoxication readily obtained. The wide use of this little machine by the police ought to discourage drunken auto driving.

Dr. Penn Riddle, of Dallas, Tex., asked the question, "Are gastric ulcers varicose ulcers?" and his clever show appeared to answer it in the affirmative. It also gave a highly practical demonstration of how to treat all kinds of varicose ulcers, including those of the stomach.

A group from the vascular clinic of the

New York Postgraduate Hospital and Medical School, Columbia, proved to all beholders that the smoking of a cigarette (or a pipe or cigar, for that matter) will cause a drop in the temperature of the fingertips of from 1° to 15°F., in most persons, by slowing the circulation in the capillaries. This may not make any difference to normal persons, but it will enable physicians, who forbid tobacco to their patients with arteriosclerosis, Raynaud's disease, angina pectoris and similar maladies, to do so with sound reason and full authority.

Another impressive presentation, not in the official scientific exhibit, but run as a sort of side-show to the Section on Obstetrics and Gynecology, was Dr. Joseph B. DeLee's hour-long moving picture, with sound, showing and explaining the use of forceps in difficult labors and the complete technic of episiotomy. This film was run four or five times, with large audiences at every showing.

#### Commercial Exhibit

The commercial exhibit was the largest and most diversified I have ever seen, and was generously attended throughout the meeting. A complete story of it would fill a book, so I shall merely call attention to a few of the *newer* things shown and to some of the "little" things which can bulk so large in the daily practice of the general clinician.

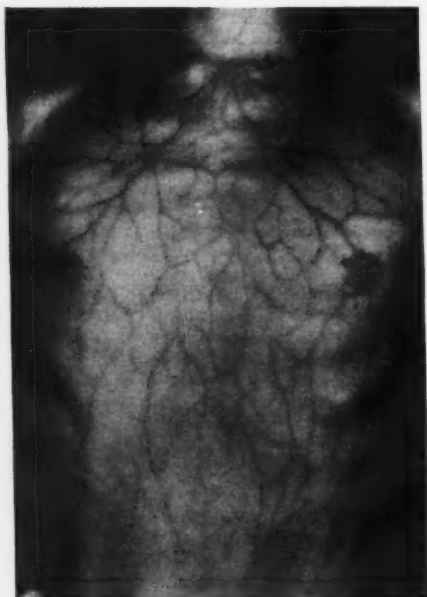
In this latter category the X-Acto Bivalve Adapters stood out. These are small glass affairs, which can be attached to any syringe of 10 cc. or larger capacity and, by the use of tubes made out of soft-rubber catheters, will enable any physician whose fingers are not all thumbs to perform blood transfusions, give infusions and do paracenteses anywhere, with surprising ease, accuracy and safety.

Many people, especially women, have suffered severe psychic handicaps because of facial blemishes (scars, birth marks, etc.) which, because of the pain, uncertainty and sometimes real danger, they shrank from having removed by surgical methods. A new cosmetic preparation, called "Cover-Mark," will actually make such blemishes unnoticeable, if not wholly invisible. When once applied it remains until removed, and stands up under the ordinary vicissitudes of social intercourse, including swimming.

The Medi-Spray appears to be a really practical pocket atomizer, for applying liquids or powders to the nose and throat; and its price is very reasonable.

Along this line, but on a more elaborate scale, is the Arizon electrically-heated vapor inhaler, which really seems to place the administration of heated vapors, in the treatment of nasal and other respiratory disorders, on a practical and scientific basis.

Those who have had trouble with hypodermic needles popping off the syringe at embarrassing moments, will welcome the Eco-Grippur syringes, which have a surprisingly



Infrared photograph showing superficial venous system in a case of sclerosis of the liver. (Courtesy of the Eastman Kodak Co.)

simple lock for holding the needles in place, and sell at modest prices.

The bag which the general practitioner (especially the country doctor) has dreamed of comes true in the Pandora Bag, which is rugged, slightly, and carries, without confusion, everything but the kitchen sink.

The General Electric-X-ray Corporation has perfected a new water-cooled transilluminator, which gives an intensity of cold light hitherto unobtainable, for the direct visual study of such light-transmitting tissues as the breast. It should be a great help in certain types of diagnostic procedures.

The manufacturers of apparatus for physical therapy, including x-ray machines, put on a show which was an exposition in itself. Especially new and interesting were the short- and ultra-short-wave, Siemens valve transmitters, for applying converse heat without direct contact electrodes. These agencies are popular in England, but are relatively unfamiliar in this country.

The Eastman Kodak Co. was showing the results of their new methods of infrared photography, a sample of which is presented here. The ability to photograph the superficial veins in a living patient may have diagnostic possibilities which we have not yet had time to evaluate.

Among a number of interesting pharmaceutical offerings, two of the newest were by

Hoffman-La Roche—pure, commercially prepared vitamin C (ascorbic acid), which they call Redoxon, and Larostidin, a monohydrochloride salt of l-histidine, for the parenteral treatment of gastro-duodenal ulcers—and one by Squibb—Radolatum, a mixture of ultraviolet-irradiated mineral oils, for diminishing wound discharges and stimulating granulation and healing.

The method of irradiating milk for general consumption, so as to give it antirachitic properties, was fully demonstrated.

One of the most impressive exhibits was the moving picture show put on by Mead, Johnson and Co., to illustrate physiologic birth control by the observation of the "safe period", as promulgated by Ogina and Knaus. The mechanism of ovulation, menstruation and conception was shown by clever animated diagrams, and the plan was made to appear perfectly feasible. Charts for figuring out the sterile and fertile periods were distributed to all physicians who asked for them.

Here follow abstracts of a few of the papers read at some of the general and section meetings.

#### THYROID DISEASE

*By Frank H. Lahey, M. D., Boston, Mass.*

Thyroid crisis, like diabetic coma, is best treated by recognizing it early and preventing it.

The early signs of approaching crisis, in a patient with goiter, are: (1) Increasing pulse rate; (2) irrationality; (3) vomiting; and (4) diarrhea. These two last-named decrease the amount of retained food and increase the danger, for the excessive hyper-combustion must be met with increased fuel, in the form of food. If not, the patient will die.

When crisis occurs, the best treatment is the continuous intravenous drip, given in the long saphenous vein at the ankle, with the needle firmly secured in place. The solution used is isotonic saline with dextrose, to which may be added, if required, 50 drops of Lugol's solution a day, and perhaps digitalis, in the indicated dose. The rate of administration is 40 to 60 drops a minute, day and night.

Thyrotoxicosis and diabetes aggravate each other, the one requiring an increase in the food intake, and the other a reduction. So far as possible, we must clear up the infections which make both of these diseases worse, and as soon as the patient is in a condition to bear the operation safely, we must do a subtotal thyroidectomy. These unfortunates are in urgent need of prompt help.

Cancer of the thyroid, in 96 percent of cases, develops in a benign thyroid adenoma; so all these neoplasms should be removed as soon as they are recognized.



While exophthalmos is a typical sign of Graves' disease, the most intractable forms of this condition occur in myxedema and are caused by edematous swelling of the extrinsic eye muscles, forcing the eyeball out of the orbit. These cases can sometimes be recognized by the wrinkling of the conjunctiva.

The only rational treatment to prevent blindness, in these cases, is to freshen the edges of the eyelids and sew them together, to protect the eyeball. The skull is then opened in the frontal region; the frontal lobes of the brain elevated; and the roofs of the orbits removed, so that their contents will have room to fall back and permit the eyeballs to assume their normal position. The sewed eyelids are then released, after a few days.

#### THYROIDECTOMY FOR ANGINA PECTORIS

By Drs. H. L. Blumgart and D. D. Berlin,  
Boston, Mass.

Following earlier work along this line, total thyroidectomy has been performed upon 75 patients suffering from angina pectoris and congestive heart failure, during a period of 18 months. These patients had not been materially relieved by more conservative treatment; but following the operation, most of them have been able to do some kinds of work without recrudescence of their symptoms.

The direct mortality in this series has been about 10 percent. Bilateral injury of the recurrent laryngeal nerve has not occurred, and in only one patient have sufficient signs of hypoparathyroidism appeared to necessitate the continuous use of calcium. Small doses of thyroid extract are sufficient to control the symptoms of myxedema.

#### PSYCHOTHERAPY IN GENERAL PRACTICE

By Lauren H. Smith, M. D., Philadelphia, Pa.

The general practitioner can use psychotherapy in his daily work, not only for the cure of functional psychic disorders, but for the amelioration of distressing physical maladies. In fact, no treatment is fully adequate that does not consider both mind and body and make an intelligent attempt to bring them into harmony.

The services of the specialists in psychiatry are not sufficient. They, as a rule, see only the severer cases, and then do not have the intimate knowledge of the domestic and general environmental background of the patient to give him the understanding and sympathetic management which is required. The family physician is the key man in all programs of psychic hygiene and the prevention and early treatment of the psychoneuroses, and he must prepare himself to discharge this responsibility.

Psychic patients often improve in a remarkable manner when removed from their family environment.

People who are emotionally and mentally sound go through stressful conditions safely. The unstable ones must be led to face and recognize the origin of their trouble. In these cases, *name* diagnoses are of no importance, if one recognizes that the basis of the disorder is within.

Discussion by Dr. A. D. Finlayson, Cleveland

Undergraduate training in psychotherapy is, at present, sadly inadequate. The young man has a chance to work on a few "floaters," most of whom are neurotic. Every physician needs basic training in psychoanalysis and *dynamic psychology*—why does the patient do and feel as he does?

In chronic organic diseases, which are hopeless so far as a cure is concerned, psychotherapy can do much to make the life of the patient more comfortable.

#### OXYGEN IN CORONARY OCCLUSION

By Drs. A. L. Barach and R. L. Levy,  
New York City

Coronary occlusion, total or partial, causes infarction or local ischemia of the heart muscle. The heart then becomes inefficient and the pulmonary circulation is embarrassed, causing hypo-aeration or relative anoxemia, which, in turn, further impairs the heart muscle.

Inhalations of oxygen (40 to 60 percent) cause diminution of the pain in from one to three hours; breathing becomes easier; cyanosis is improved; fever, if present, falls; and the blood pressure is normalized. If the administration of oxygen is stopped too soon, the symptoms return.

Not every case requires oxygen—only the more serious ones—but it is well, in such cases, always to have oxygen at hand in case the patient becomes worse. Cyanosis, rapid and feeble heart action, dyspnea and low blood pressure are *always* indications for oxygen.

The oxygen should be given in a large tent, employing from 5 to 8 liters a minute, at a temperature of from 65° to 70°F. The concentration should be from 40 to 70 percent (usually 50 to 60 percent); never more than 70 percent, and that for only a few hours.

The patient should remain in the tent for 5 days, more or less, and the percentage of oxygen should be gradually lowered after the first two or three days. When taken out of the tent, the patient should be carefully watched for cyanosis, dyspnea and a rising pulse rate. If these appear, he should be returned to the tent for another period.

If no tent is immediately available, a nasal catheter may be used, with its tip just above the glottis, and 5 to 8 liters of oxygen released per minute, which will give a concentration of about 50 percent.

**LIVER EXTRACT FOR PARENTERAL USE**

By Drs. Wm. Dameshek and Wm. B. Castle,  
Boston

If a submaximal dose of liver extract is injected intramuscularly and causes an increase of the reticulocytes, the same amount, for a second dose, if given diluted, will give a second reticulocyte response. If the first dose is given diluted, it will produce a reticulocyte increase; but no further effect will be produced if a more concentrated extract is injected later on.

It has been found that, during the processes of purification and concentration of certain liver extracts, a large percentage of their therapeutic activity is being lost. Therefore, various commercial extracts differ widely in their potency.

(Announcement was made that the new New and Non-Official Remedies and the new Pharmacopoeia will probably no longer refer to the amount of liver represented by a product, but an efficiency standard will be adopted, the unit being defined as that quantity which, given parenterally or by mouth, will produce a standard reticulocyte response.—A. E. M.)

**STERILIZING DOSES OF ARSPHENAMINES BY THE INTRAVENOUS DRIP METHOD**

By Louis Chargin, M. D., New York City

Ehrlich, when he discovered "606", had a vision of *therapia sterilizans magna*, but it has not, heretofore, been realized in human beings, though experimental syphilitic animals have been sterilized of the organisms by one or two massive doses of arsphenamines.

Massive doses of these drugs, given to human beings by the usual technic, are liable to produce toxic symptoms, but given largely diluted, by the intravenous drip method, they are well borne and produce excellent clinical and serologic results (95 percent of the cases were Wassermann-negative in three months), with no toxic symptoms of consequence.

Twenty-five (25) cases of early syphilis have been treated by this method, giving from 3 to 5 Gm. of neoarsphenamine in from 3 to 5 consecutive days (in one instance 9 Gm. of neoarsphenamine was given in one day). For comparison, the average dose, by ordinary methods, is 0.3 to 0.6 Gm. once in 7 days—3.6 to 5 Gm. in six weeks. The drip method permits us to follow the dictum, "As much arsenic as possible, as early as possible."

**Technic**

The patient must be in hospital, under close observation in bed. The cubital vein is used, with the needle fastened in place, and the arm is strapped so that it cannot move. A drip-window is inserted in the delivery tube.

Twelve hundred (1,200) cc. of 5-percent

dextrose solution are run in first; then 1 Gm. of neoarsphenamine dissolved in 50 cc., slowly; then more dextrose solution. In 12 hours, 1,500 cc. of the 5-percent dextrose solution are given.

**Discussion**

Dr. Howard J. Parkhurst, Toledo, O., suggested that, in early cases of syphilis, fever therapy is an excellent adjuvant to chemotherapy.

Dr. Clyde L. Cummer, Cleveland, O., stressed the fact that the drip method is still in the experimental stage and that the final results cannot be known for several years.

He also called attention to the disadvantage arising from the necessity for hospitalization in connection with this treatment.

**NEWER IDEAS ON DIET**

By James S. McLester, M. D., F.A.C.P.,  
Birmingham, Ala.

A generation ago, the popular medical practice, in treating a seriously ill patient, was to limit the diet rather rigidly. In diabetes, Bright's disease, gastric ulcer and typhoid, and even in tuberculosis and pregnancy, these "low" diets were quite the vogue. The starved typhoid patient of thirty years ago was a very sick patient; while the well-fed one of today is much less seriously ill.

Instead of hunting for foods we can forbid, we are now making active efforts to find ways in which we can increase the nutrition of sick people, and thus enable them to make a more adequate fight against their disease.

Some obstetricians still have the idea that it is a good plan to restrict the diet of pregnant women, in order to limit the size of the child; and especially to restrict the intake of proteins, with the idea that this will lessen the chances of eclampsia. During pregnancy, a woman needs, more than at any other period in her life, an abundant diet which provides all the necessary food factors. To deny her this, even in small degree, is to court disaster.

**PARALDEHYDE IN OBSTETRICS**

By Drs. R. A. Bartholomew and E. D.  
Colvin, Atlanta, Ga.

If compatible with normal, physiologic labor, it is well to obtain for the patient both analgesia and amnesia. A combination of paraldehyde and Sodium Amytal does this satisfactorily, in most cases, with the possible addition of a little nitrous oxide and oxygen in the third stage.

As soon as labor is definitely established, give a rectal injection of 6 Gm. of paraldehyde, mixed with equal parts of olive oil, and 3 grains of Sodium Amytal by mouth. When the cervix is dilated 3 cm., give another 3 grains (0.2 Gm.) of Sodium Amytal. A primipara may need one hypodermic injection of  $\frac{1}{4}$  grain (16 mgm.) of morphine, with 1/100 grain (0.64 mgm.) of scopolamine.

Half an hour after the paraldehyde is given, the patient is sleeping between the pains, which are normal, in 96 percent of cases. The pulse, respiration and blood pressure are unchanged, and the baby, when born, cries promptly.

The patient must be on the bed when this medication is given, and from that time on must be kept quiet in all ways. When she is drowsy and amnesic, the bed should be moved to the delivery room and the patient transferred to the table.

Labor is not prolonged by this method, though amnesia is complete in 94 percent of the cases, and there is no increased necessity for the use of forceps. If there is some delay in the labor, one may give 8 to 10 minims (0.5 to 0.66 cc.) of pituitary extract.

#### Discussion

By Harold H. Rosenfield, M. D., Boston

Our object, in these cases, is to relieve pain throughout labor, so analgesics and amnesics should be given early.

As soon as labor is established, I give 3 grains (0.2 Gm.) of Nembutal (a prompt-acting barbiturate), followed by 5 Gm. of paraldehyde by rectum. This will carry the patient through 6 or 7 hours of labor. If labor lasts longer than that, give 1½ grains (0.1 Gm.) more of Nembutal and 2 or 3 Gm. more of paraldehyde. In long labors we must repeat the amnesics to obtain good results. Amnesia can be made complete in 95 percent of labors, with no delay and no increase in fetal mortality.

#### PREVENTION AND TREATMENT OF PUERPERAL SEPSIS

By B. P. Watson, M. D., New York City

The microorganisms which cause puerperal sepsis are very commonly introduced by carriers—often from the respiratory passages—and if we are to prevent these infections, every person not absolutely necessary for conducting the labor must be kept away from the parturient woman, and the obstetrician and nurses should be scrupulously masked (over nose and mouth) and even wear a cap and gown, as for a major surgical operation.

It is perfectly safe to make vaginal examinations, if surgical asepsis and care are

observed in every instance. It is better not to use antiseptics in the vagina. If forceps are to be used, it must be with gentleness and skill.

Blood transfusion is the ideal treatment. There should be no local interference. The genitalia are never sterile, and a sterile hand can carry hemolytic streptococci to uninfected regions. Moreover, these organisms can readily be deposited on the parts or instruments, by those who are carriers, by coughing, or even by breathing.

In all examinations and procedures connected with parturient women, the same "fussy formalities" should be observed as are associated with the most delicate and dangerous major surgical operations.

#### ACNE-LIKE LESIONS DUE TO FOOD ALLERGY

By Cleveland J. White, M. D., Chicago

In 32 cases, eruptions closely resembling acne, after failing to respond to all the recognized methods of treatment, including x-rays, have been clinically cured by using the so-called elimination diets or a basic "non-allergic" diet.

The non-allergic diet consists of carrots, lettuce, prunes, plums, apricots, lamb, veal, rye-crisp wafers, olive oil, tea, coffee and peppermint candy. If, on this diet, no new eruptions appear for a week, other foods are added, one at a time, watching closely to see if they cause new eruptions (which usually appear within from 2 to 6 hours after eating an offending food) and waiting a day or two before adding another.

The most common foods producing these acneoid eruptions are: chocolate, milk, oranges, tomatoes, wheat and nuts. It is best to begin by adding to the non-allergic diet the foods which seem least likely to cause the symptoms. If any food added produces new eruptions, it is, of course, promptly and permanently eliminated from the patient's diet.

Cutaneous food tests are of no value for diagnosis in these cases. Vitamin D and ultraviolet irradiations raised the threshold of allergic response in some cases.

#### FOREIGN BUGS AND IDEAS

During the past few decades we have spent large sums of public money to protect our agricultural interests against the ravages of certain alien pests, such as the Mediterranean fruit fly, the Japanese beetle, the boll-weevil, the corn-borer, etc.; but during all these years we have not appropriated even one dollar to protect ourselves and future generations against a far more dangerous alien enemy. We refer to un-American theories and doctrines of government and economics concocted in the cellars and garrets of foreign cities and brought to the United States for a try-out.—COMMITTEE ON AMERICAN EDUCATION.

# PHYSICAL THERAPY AND RADIOLOGY

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## Madame Curie

WE live in a most wonderful time; so wonderful that only generations yet unborn will be able to view it in its true proportions, from a perspective of the distant years.

We are so apt to view the novel and bizarre in the news with the childish pleasure and wonder evoked by the legerdmain of the magician, and to arise and go forth to what we are pleased to call the "practical things of life."

The transparency of human flesh to x-rays; atoms bursting like firecrackers; the transmutation of matter from one element to another; the discovery that atoms are miniature solar systems; the recreation of an element which disappeared from this earth before even trilobites existed; the knowledge that matter and electricity are but different aspects of the same thing and that even light has mass and weight, take their places in the stream of daily events with stream-lined trains, stratosphere ascensions, flying without power, imitation rubber, political assassinations in Europe, the latest bank robbery by Dillinger, the baseball score and the latest scandal from Hollywood.

It is well for us sometimes to step aside into the quiet of our inner sanctums and contemplate with the inner eye the significance of some items in the daily news.

During the first week in July, there passed from her earthly labors a frail little woman, at the age of sixty-seven years who, if you had met her on a street corner in Paris on a rainy day, would have prompted you to force a coin into her unwilling hand.

This woman was Madame Curie, who has

bestowed upon the world a largess beyond the powers of man to estimate.

Born in Poland, her father a scientist and teacher at the Lycée of Warsaw, her mother, principal of a girls' school, the young girl early appeared a brilliant student and a flaming spirit.

Unable to remain silent under the political oppression of the Russian Czar, her outspoken protests and active opposition singled her out for arrest and exile. She fled to France.

There she was so poor that she eked out a living on bread and milk, at ten cents a day, for so long that, as she said, she had to reaccustom herself to the taste of meat and wine.

As a student she went to the Sorbonne where, like an apprentice of old, she washed bottles, cleaned and arranged apparatus, tended the furnace and did other menial jobs, while she continued her studies in physics under some of the leading teachers of France.

Here romance entered her life, because she fell in love with her instructor in physics, and Marie Sklodowska became Madame Pierre Curie. Here, with enthusiastic energy and pitiful resources, they continued their research work together and, because the schoolroom did not afford the space they needed, they moved into an empty warehouse near by and, in a room with an asphalt floor, a broken and patched skylight, stuffy and hot in summer and heated by a cast-iron stove in winter, they set up their scanty apparatus upon old deal tables.

Having no means to hire assistants, Madame Curie performed most of the drudgery her-



self and often arrived at home utterly fatigued by her long day of toil, to assume the duties and labors of housewife and mother.

When Becquerel discovered that pitchblende and uranium gave off energy which discharged electroscopes and penetrated opaque substances to fog photographic plates, the Curies set themselves to investigate this new property of matter.

It was noted that some samples of pitchblende were even more radioactive (a word coined by Madame Curie) than even the element uranium which it contained. The Curies undertook to discover what this substance might be. They were aided by the Austrian government, which gave them a ton of pitchblende.

The drudgery and infinite patience required for the seemingly endless repetitions of solution, precipitation, filtration, and refining, followed by the most meticulous and time-consuming methods of fractional crystallization, again and again repeated, finally produced a pinch, a pitiful pinch, of salts, which a breath would have scattered, yet from this pinch there was emitted a radioactivity 100,000 times greater than that from metallic uranium.

From this pinch of dust were separated radium and polonium—the first named by Madame Curie, the second by Professor Curie, in honor of his wife's native country.

Soon afterward a large family of descendants of these elements was discovered and, by their aid, the transmutation of matter was finally revealed to a wondering world. "Radioactivity is a property of the atom," declared Madame Curie, who also confirmed Prout's guess, made in 1815, that all the elements are built up out of hydrogen atoms.

By radioactivity an entirely new concept of physics and the nature of the atom arose. Matter and energy were proved to be but

different aspects of the same thing. It has put into our hands new powers never before dreamed of. The energy bound up in the atom, like that in a charge of dynamite, has been calculated to a degree of refinement seemingly impossible, and its utilization has been the tool to learn more about atomic disintegration, radioactivity and the transmutation of matter.

We have discovered, in radioactive substances, wonderful agents for therapeutic use. The energy may be used, as we employ x-rays from tubes, as a remedy, just as we employ any other drug.

Ever modest, both husband and wife constantly bestowed the credit upon each other. Honors were showered upon them. Governments and individuals hastened to acknowledge their greatness by membership in learned societies, by prizes and by gifts.

And then, on April 1, 1906, the great tragedy of her life occurred, when her brilliant husband was knocked down and killed by a motor truck in the streets of Paris.

Bravely she kept her grief to herself and continued modestly and indefatigably the pursuit of her investigations.

The years brought to her more triumphs and more honors. She departs leaving two talented daughters—one, Madame Curie-Joliot, who is also a brilliant physicist and who has just produced a radioactive element artificially.

She leaves a world immeasurably enriched by her discoveries and with an entirely revolutionized scientific view of the universe.

We finish with her own biography. "I was born in Poland," she said; "I married Pierre Curie, and I have two daughters. I have done my work in France."

F. T. W.

## NOTES AND ABSTRACTS

### Treatment of Gonorrhea by Electrolysis\*

**B**ACTERIA suspended in saline solution which is traversed by a constant current, move to the anode, at which they congregate in dense clouds. These bacteria are killed by the ions liberated at the electrode. To apply this method in gonorrhea, a column of saline is put in contact with the affected membrane

and movement of gonococci towards the anode (a wire inside a catheter) follows the flow of the current, together, of course, with a simultaneous lethal effect.

A perforated, small-size rubber catheter is gently passed down the anterior urethra to the compressor muscle. The catheter carries a small rubber or glass funnel and is traversed by a platinum wire to within an inch of the catheter eye. A wet conducting pad invests the scrotum and penis and is connected to the

\**Brit. J. Phys. Med.*, Oct., 1933.

negative pole, the wire in the catheter being the anode. The fluid I use is 1-percent saline, containing one-half percent monochloroacetic acid. A current of only 1.5 m. a., passed for half an hour, is required and the whole procedure should be painless. The patient should void his urine immediately before and after the treatment.

In chronic gonorrhea the current should be increased to 2 m. a. and passed for 15 minutes. The method of application must, of course, be modified in the female. The method is a treatment *de luxe*, not applicable to clinic patients.

CHAS. RUSS, M.B.

### Diathermy Treatment of Dementia Paralytica\*

ALMOST universally favorable results have been reported from the treatment of dementia paralytica by artificial fever produced by diathermy. Although it does not have the many disadvantages of malaria treatment, we have not been able to reproduce the favorable results.

From August 1928 until June 1932 we used diathermy in 50 cases at St. Elizabeth's Hospital. Seven of them had previously received a course of malaria treatment without much benefit. A full series of diathermy treatments was administered in 44 cases, the temperature being raised to 104°F. plus, during a period of from two to four hours. Treatment of the others was interrupted by complications after from one to nine periods.

The substitution of diathermy for malaria has, in our hands, met with almost complete failure. Some of the patients became very restless during the period of rising temperature, and two received extensive second degree burns, due to shifting of the electrodes. During the period of high fever, some developed muscular twitchings and some actual convulsive seizures. Marked prostration followed most of the treatments. Conclusive seizures were more frequent than with malaria, and there was no noticeable improvement following the diathermic fever periods, as is noticed following malarial paroxysms. More cases can be treated with malaria and cared for in less time and with less personnel than when diathermy is used. We abandoned diathermy in 1932 because of poor results.

Ten (10) of our patients improved; 26 did not improve; and 11 died. They were not of the most favorable type. Eighty percent of them were negroes, and neurosyphilis in the negro race is possibly more malignant than in the white race. Most of our patients were of the dementing type that makes a poor showing with any form of treatment. Two

of the deaths resulted from thermic fever that could not be controlled, and another from convulsive seizures shortly after the first treatment. The other eleven patients lived from two to thirty months, dying very much in the manner of the ordinary untreated case of dementia paralytica.

Not a single patient in our series shows sustained improvement attributable to diathermy alone. Those showing such improvement had previously, or have additionally, received treatment with malaria, bismuth or tryparsamide.

In most cases, malaria brings about a demonstrable arrest of the inflammatory and degenerative processes going on in the brain. Histologic examination of six patients that died in our series revealed persistent inflammation in every case.

In our opinion, the early (favorable) reports on the diathermy treatment of dementia paralytica were published after too short a period of observation. It is now less than five years since Neymann and King and Cooke began their experiments. The high percentage of deaths (28) in our series, over a period of four years, contrasts very unfavorably with the results obtained with malaria.—DRS. WALTER FREEMAN, T. C. FONG, and S. J. ROSENBERG, Washington, D. C.

### Present Status of Physical Therapy in the United States\*

THE development of physical therapy would have been impossible without the initiative and perseverance of a small group of enthusiastic men and women who practised and taught it for the past forty years, in spite of great handicaps. They formed, in 1891, the first physical therapy association in the world, under the name of the American Electrotherapeutic Association. In 1927 its name was changed to "American Physical Therapy Association." The American College of Physical Therapy was formed in Chicago by a group of younger men after the War. In 1929, it adopted the designation of the American Congress of Physical Therapy. The Association has now merged into the Congress. *The Archives of Physical Therapy, X-Ray and Radium*, is the official organ of physical therapy. The main body holds its national meeting annually.

The Council on Physical Therapy was established by the American Medical Association in 1925. Its aims and purposes are threefold:

1.—To protect the medical profession, and thereby the public, against misleading and deceptive advertising in connection with the manufacture of devices for physical therapy.

\*J. A. M. A., June 3, 1933, p. 1749.

\*Brit. J. Phys. Med., Sept., 1933.

2.—To disseminate such reliable information as it possesses or may acquire, and to stimulate instruction to aid the practising physician to choose true and sound physical therapy methods.

3.—To act in an advisory capacity to the profession and to the public in all matters concerning this form of therapy.

To stimulate original research in biophysics and physical therapy, the Council is granting financial assistance to physicians who submit an acceptable plan for such work. Objectionable sales and advertising methods of some manufacturers have been effectively curbed by the Council. Three members of the Council have recently written a loose-leaf, three-volume work, "Principles and Practice of Physical Therapy."

Many medical schools have now instituted regular teaching in physical therapy, and research work in physical methods of treatment is being carried on in a number of institutions. In 1931 the A.M.A. reported 2,236 physical therapy departments in hospitals, as compared with 4,523 x-ray departments. Technicians' courses have been established in many hospitals, medical schools and universities, and poorly trained technicians, of which there are still many, are fast being replaced by technicians of thorough training and ability.

A number of states have laws requiring that physical therapy must be applied only by or under the immediate supervision of adequately trained physicians. A nation-wide registration of acceptable technicians would be desirable.

RICHARD KOVACS, M.D.

New York City.

### Ultraviolet Irradiation for Relief of Bladder Tuberculosis\*

**A** DEFINITE percentage of patients with unilateral renal tuberculosis, even after nephrectomy, have persistent bladder symptoms, resisting all the forms of therapeutic administrations which are currently employed.

We have treated one case with definite improvement following the application of ultraviolet irradiation and air ventilation to the interior of the bladder. A special applicator was devised, by which the rays and air could be accurately introduced into the bladder, a cold-quartz mercury vapor orificial applicator being insulated by metal to protect the urethra, and its tip being insulated by means of shellac to protect the bladder wall. A tube was incorporated through the insulating sheath for the air insufflation. The ultraviolet rays are applied after a moderate amount of air distension of the bladder.

\*J. Urol., Oct., 1932.

The dose of application was at first 5 seconds, increased 5 seconds each day for 4 days and afterwards increased 10 seconds at a time. After the first 4 applications of 5, 10, 15 and 20 seconds, the urine became perfectly clear and free from bacteria and the other symptoms had almost completely subsided. The range of wavelength which exerts the maximum lethal effect on bacteria is within the figures 2700 to 2500 A. U.

We believe that this new method of therapy is capable of great extension in the treatment of bladder and kidney infections of various types.

DRS. J. R. CAULK and F. H. EWERHARDT.  
St. Louis, Mo.

### Comments on the Higher X-Ray Voltages\*

**T**HE publicity which has been broadcasted regarding 1,000,000 volt x-ray machines as cancer cures is ill-timed and unfortunate. In the first place, there are only two institutions in the United States with machines which have successfully maintained a therapeutic voltage over 500,000 for any appreciable time period, and second, no more results or reactions can be claimed from these machines than those formerly received from less voltage. Several years must elapse before the full therapeutic effect on cancer can be evaluated from such colossal x-ray therapy.

The shortest effective x-ray wave length now available corresponds to a voltage of between 500,000 and 600,000. At these potentials, a tube carrying five milliamperes emits a radiation intensity that is comparable to that from 500 grams of radium. From an economic standpoint, the comparison is in favor of x-rays. The cost of that amount of radium would be insurmountable, and it may never be known what therapeutic effect it might offer. On the other hand, the expense connected with x-ray equipment necessary to yield 500,000 voltage is within the cost range of certain hospital and clinic groups.

Dr. Charles C. Lauritsen designed and built the first high-voltage tube five years ago, one of which has functioned satisfactorily under a voltage of 1,200,000. An opinion can not yet be expressed as to its ultimate clinical value. Whereas the ordinary 200 kilovolt tube gives a depth dose of approximately 38 percent at a depth of 10 cm. of tissue, a 500 kilovolt tube gives practically a 45 percent depth dose at a level of 10 cm. from the surface. This opens up a field to high-voltage x-ray therapy not hitherto obtained. It is my opinion that in the near future radium will be employed largely for interstitial application and short-wave x-rays for external treatment.

\*J.A.M.A., Sept. 30, 1933.

Patients from my clinic who have been submitted to the Lauritsen tube have, in some instances, shown interesting reactions. Some with extensive secondary carcinoma of the glands of the neck (primary in the tongue, lip or tonsil), which had already been appreciably reduced with the 200 kilovolt tube, and had become radiation-fast, were perceptibly benefited and, in a few instances, the use of the big tube caused entire disappearance of the growth. Similar reactions were observed in certain types of carcinoma of the breast, and (in one patient) carcinoma of the rectum.

Dr. Lauritsen says that the achievement of 1,000,000 volts is but a beginning and that it is possible to construct an apparatus of almost unlimited voltage. If time should demonstrate that its medical usefulness increases in proportion to its rise in voltage, a new field of endeavor will open for radiology.

ALBERT SOILAND, M.D.

Los Angeles, Calif.

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Read the Ads. Ask for literature and samples. Mention "C. M. & S."

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"C.M.&S." refreshes my memory and instructs and informs, interestingly and in greatest variety, regarding the latest and most monumental in medicine, better than any publication that I know of.—A. L. E., M.D., California.

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## BOOKS

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### Glasser: Radiology

**THE SCIENCE OF RADIOLOGY.** Edited by Otto Glasser, Ph.D., Cleveland Clinic Foundation. Springfield, Ill., and Baltimore, Md.: Charles C. Thomas. 1933. Price, \$4.50.

This volume presents the outstanding features developed in the science of radiology from the time of Röntgen's discovery in 1895 to the present. It consists of twenty-five chapters contributed by twenty-six American leaders in physics, radiology, roentgenology, and other branches of medicine and medical science. It covers all phases of the general subject of radiology. Chapter I is devoted to Wilhelm Konrad Röntgen and the discovery of roentgen rays. Chapter II is devoted to Pierre and Marie Curie and the discovery of radium. Chapter III considers American pioneers in radiology. The remainder of the book is devoted chiefly to the physics, apparatus, and therapy and other uses of roentgen rays and radium. Chapters XXVI and XXV consider cosmic rays and Gudwitsch rays.

Although radiology is one of the younger divisions of science, medical radiology seems to be growing in importance with great rapidity, and is probably advancing more rapidly at the present time than any other division of medicine. This historical account of radiology is a noteworthy achievement, and now that its basic story has been told it can be added to readily as further progress is made. Every radiologist will find this a book in which to take pride, one to be placed on the prize-volume shelf of his library. Students and practitioners in other branches of medicine will find it an excellent history.

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## NEWS

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### Physical Therapy Meeting

**THE** thirteenth annual session of the American Congress of Physical Therapy will be held at the Bellevue-Stratford Hotel, Philadelphia, Pa., Sept. 10 to 13, inclusive, 1934. Clinics will be held at several hospitals on Sept. 14.

A preliminary program may be had by addressing the Congress at 30 No. Michigan Ave., Chicago, Ill.

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## ETHICAL EDUCATIONAL PUBLICITY IN RADIOLOGY

*In order that the people may benefit from radiologic practice, it is necessary that the public should know what the science of radiology is. In addition to knowing something of what a radiologist can do to benefit it, the public should know that the radiologist is a qualified physician who has had special training and experience in the practice of radiology.*

*In the three-year period of endeavor of the Publicity and Educational Committee of the Radiologic Society of North America, a great change has taken place in the attitude of the press toward our efforts. Editors and managers apparently realize the advantages of securing material from a central committee or bureau. They are also evidencing appreciation of the objects of our program and are able to handle our material more intelligently; there is an inclination to appreciate our effort, witnessed by the absence of distortion of material and sensational headlines.—DR. B. C. CUSHWAY, of Chicago, in Radiology, Aug., 1932.*

# A LIVING FOR THE DOCTOR

(The BUSINESS of Medicine)

## The Objection to State Medicine

IN a recent editorial we discussed the objections that could be raised to the various schemes for hospital insurance, as enumerated by the Committee on Medical Economics of the Philadelphia County Medical Society. In the present editorial, we present the objections to another phase of the pernicious lay domination of medicine, as compiled by the same able Philadelphia Committee.

The attempt at lay control of the practice of medicine appears in two main phases: one of which is the so-called hospital insurance; and the other what is more generally known as "State Medicine." Both of these projects involve revolutionary changes in the practice of medicine which are totally destructive to organized medicine. Lay domination of medicine, in whatever form it may assume, means the abolition of independent medical practice, the sacrifice of the interests of the great majority of practicing physicians for the favoring of those of the selected few, the surrender of all the traditions that have been built up around the science of medicine through centuries of heroic service and self-sacrifice, and the loss of the prestige which is invariably associated with commercialization of any line of endeavor or relaxation. For commercialized sports have suffered deterioration in just the same way as commercialized professions must go down, though probably not to the same degree, because of the much smaller number of individuals concerned and because so much that is worth while in principles and ethics has not been involved in the case of the sports.

From a comprehensive study of the entire subject considered from every point of view, the Committee of the Philadelphia County Medical Society points out that Organized Medicine is opposed, and must be opposed, to compulsory health insurance (State Medicine) for the following reasons:

- 1.—"Who is going to run it?"
- 2.—It is against sound public policy.
- 3.—It results in an inferior type of medical service.

4.—It subjects the physician to the vicious influence of political control.

5.—It limits unfairly the income of physicians.

6.—It limits the physician's responsibility for his medical judgment.

7.—It stagnates the stream of scientific progress and stifles research.

8.—It limits the free choice of physician.

9.—It lessens the confidence of the patient in the physician.

10.—It becomes impossible for professional success to be based upon professional skill.

11.—It results in disorganization of organized medicine, which is essential to medical progress.

The force of these objections will be immediately apparent to anyone who carefully reads and weighs them. It must be evident to everyone that there would not be any attempt on the part of lay organization to control the practice of medicine unless there was an immense profit in such control. Therefore, lay control of medicine concerns itself, not with the public welfare, but with its own private interests. If there is much profit in it for those concerned, it matters not that this means less efficient medical service for those most vitally interested—the public. In other words, the public is having the wool drawn over its eyes in the form of cheaper medical service, but fails to see that this means service of a lower grade of value. The public, therefore, must be educated against state medicine in its own interest, in order that the people may be assured of good service when medical care is required.

On the other hand, it would seem that a stronger organization of medical men than that which now exists—a sort of unionization of the profession—is needed, in order to combat more effectively the imminent evil of state medicine. When such an organization, or unionization, is accomplished, the younger medical men could largely be prevented from cutting legitimate medical rates by accepting service in these lay organizations, for fear of



being discredited among their professional brethren. For, after all, almost everyone in a given line of business or vocation wishes to hold a position of honor and credit in that calling in which he is engaged.

A combined education of the medical pro-

fession and the public against the evils and dangers of state medicine we believe would prove a very effective barrier against the encroachment and spread of this undesirable project.

W. A. NEWMAN DORLAND, M.D., F.A.C.S.

## NOTES AND ABSTRACTS

### Report of Medical Service Board of the American College of Surgeons\*

THE Medical Service Board of the American College of Surgeons respectfully submits the following report to the Board of Regents.

1.—The American College of Surgeons affirms its interest and its desire to cooperate with other agencies looking toward the provision of more adequate medical service to the whole community.

2.—The College believes that it is the duty of the medical profession to assume leadership in this movement and to take control of all measures directed to this end.

3.—Encouragement should be given to the trial of new methods of practice designed to meet these needs, and a careful evaluation of their success should be the duty of the medical profession, before they are offered for general adoption. All such new and experimental methods of practice must be conducted strictly in accordance with the accepted code of ethics of the medical profession, in order that the interests of the patient and of the community may be protected.

4.—The College recognizes for immediate study four groups of the population, for whom more adequate medical service should be made available, as follows:

- A.—The indigent.
- B.—The uneducated and credulous members of the community.
- C.—Those who, because of limited resources, are unable, unaided, to meet the costs of serious illness and hospitalization.
- D.—Those living in remote districts, where adequate medical service is not obtainable.

5.—The care of the indigent sick should be a direct obligation upon the community, and (unless otherwise compensated by intangible benefits, such as staff and teaching appointments, opportunity and experience) physicians fulfilling this public service should receive remuneration.

6.—The College should work in cooperation with other medical groups in order to dispel the ignorance and credulity of the public,

and to bring the people to a proper realization of the protective and curative resources of modern medicine.

7.—The American College of Surgeons recognizes that the periodic prepayment plan, providing for the costs of medical care of illness and injury of individuals and of families of moderate means, offers a reasonable expectation of providing them with more effective methods of securing adequate medical service.

A number of different plans for the organization of such services have been proposed, although few have been in operation long enough to permit definite conclusions in regard to their success. It is to be desired that these experiments be continued. Conditions differ to such a degree in different parts of the country that a specific plan which is practicable in one place may require modification of details in other communities. The varying restrictions imposed by present insurance laws in different states further complicate the problem.

Periodic pre-payment plans providing for the costs of medical service may be divided into two classes.

A.—Payment for medical services.

B.—Payment for hospitalization.

It is suggested that plans for the payment of hospitalization alone (Class B), without provision for payment for medical service, may be considered the first project to be undertaken in the average community.

The American College of Surgeons believes that certain general principles can and should be established, the observance of which will tend to obviate known difficulties and dangers which may threaten the success of these special forms of medical service. These principles are as follows:

A.—Periodic pre-payment plans for medical service should be free from the intervention of commercial intermediary organizations operating for profit.

B.—In the interest of the patient, the organization of plans for the periodic payment of medical and hospital costs must be under the control of the medical profession.

\*Dated June 10, 1934

- C.—The principle of free choice of the physician and hospital by the patient must be assured, to the end that the responsibility of the individual physician to the individual patient shall always be maintained.
- D.—The compensation of the physician and of the hospital should be estimated with due regard to the resources available in the periodic payment fund and should be based upon the specific services rendered.
- E.—The organization and operation of any plan of this type must be free from any features not in accordance with the code of ethics of the medical profession, which code has been established for the protection of the patient.
- F.—The medical organizations participating in such a plan must assume the responsibility for the quality of service rendered.
- 8.—Periodic pre-payment plans for medical and hospital service should eliminate many of the conditions which have brought about the development of industrial contract practice. Until such plans have been more widely established, certain general principles should be formulated,\* with a view to the elimination of the commercial features of such forms of medical service.

ROBERT B. GREENOUGH, M.D., Chairman.  
(Boston, Mass.)

BOWMAN C. CROMWELL, M.D., Secretary.  
(Chicago, Ill.)

### Guild Medicine†

I OFFER no solution of the present-day medical practice problem, for I have none. There are two things which might be suggested as possible palliative measures and one which seems to me to be an absolutely essential measure under any form of medical practice.

The two palliative measures are these: First, most people do not seem to realize that in this country the growth of population is decreasing very rapidly. We are producing medical men, and have been for the past decade, at a relative rate which is between five and seven times as fast as the population is growing. Certainly this situation must eventually be controlled, both for the good of the public and for the good of medicine. That control can only come through the close co-operation of organized or guild medicine, the medical and basic science boards and through

\*A "Minimum Standard for Industrial Medicine and Traumatic Surgery" was formulated by the Board and formed a part of its Report, but is omitted here (also parts of "general principles") for lack of space. A copy of the full report may be obtained, on request, from the American College of Surgeons, 40 East Erie Street, Chicago, Ill.

†Minnesota Med., March, 1933.

the institutions engaged in medical education.

The second palliative measure is that the physician should receive some compensation, at least, for the charity work he does.

But primarily it seems to me the thing to do is to keep, strengthen and make firm your guild organization of medicine. It has existed for 500 years and has proved its strength through crises as great as the one we face today.

RICHARD E. SCAMMON, Ph.D.  
Minneapolis, Minn.

### The Doctor in the New Set-up

SOCIALIZED medicine is not in the offing. It is here now, and no red-blooded doctor will like it, when it comes to full maturity.

One of the sure ways out of the hardships which are sure to come to all of us is to begin, now, to prepare ourselves to give a service so perfect that our part in the world's task will be impossible to do without.

We, as physicians, are the builders of our fate. Our education, our training, the very nature of our calling, so place us in world affairs that each one of us can do about as he pleases. But we must have a care and use thought and judgment, for great power generally develops some point of weakness, which can, if not guarded against, ruin our whole effort.

JOHN CLARK, M.D.

Longton, Kans.

### Other "High Costs"

MAYBE medical practice in this country was singled out as easy picking for the vested interests, who saw a chance to participate in the profits of 3½ billion dollar annual business, especially as it is the one remaining commodity that has not succumbed to the onslaughts of capitalism; but whatever the reason, we cannot help wondering why in the world the family doctor bill was picked out for all the ado and to-do and nothing done about all the other bigger bills. It would seem only natural that an investigation into the family doctor bill should be followed by an inquiry into the family automobile bill, usually about two or three times as large. If the majority of the public are suffering so terribly under the doctor bill, think of their agony under the automobile bill!

There are other "high costs"; even the Costs of Medical Care Committee put the family tobacco bill at about the same level as the family doctor bill, so which one is to be reduced? Why, the doctor bill of course. The logic probably is that it is natural for smoke to go up, while medicine always goes down.—N. Y. State Med. Jour., Feb. 1. 1934.

# THE SEMINAR

(NOTE: Our readers are cordially invited to submit fully worked up problems to the Seminar and to take part in the discussion of any or all problems submitted.)

Discussions should reach this office not later than the 5th of the month following the appearance of the problem.

Address all communications intended for this department to The Seminar, care CLINICAL MEDICINE AND SURGERY, Waukegan, Ill.)

## Problem No. 6 (Medical)\*

Presented by

Dr. Sol. R. Rosenthal, Chicago

A WHITE MALE, twenty-seven years of age, had been well until three months before he entered the hospital, when he began to have chills and fever, which would occur daily and often last two to three hours. There was no accompanying cough and sweats. He would vomit and become dizzy after eating substantial food, so that he restricted himself to a bland diet. About five weeks before he entered the hospital, he had a severe attack of urticaria, with swelling of hands, feet and eyelids. This subsided in ten days. Weakness and loss of weight accompanied the above symptoms.

On physical examination he was comfortable and did not appear acutely ill; temperature 101.4 degrees F.; pulse 84; respiratory rate 24; blood pressure 110/70. The pharynx was markedly injected. The cervical, axillary and inguinal lymph nodes were enlarged bilaterally and discrete. The heart and lungs were negative. Both liver and spleen were moderately enlarged and palpable.

The red blood cell count was normal (5,150,000 to 4,500,000) and the white blood cell count, which was 5,100, showed 28 percent polymorphonuclears, 64 percent lymphocytes and 8 percent monocytes, but no abnormal forms. Agglutination tests were all negative.

While in the ward the patient ran a remittent type of temperature, varying from 99 to 105 degrees F. He became weaker, semi-conscious, developed twitchings all over his body and terminally his breathing was of a Küssmaul's type.

**Requirement:** What is the provisional diagnosis? What further information would be required to make a definitive diagnosis?

**Discussion by Dr. John Clark,  
Longton, Kansas**

MY way to meet the requirement in problem No. 6 will be to consider a limited number of the likely conditions where each

item in the history and the physical findings occurs. With each item I will indicate what further information, if any, is required to clear the diagnosis. When the given data are all gone over, I will try, by exclusion, to discard the most unlikely disease and give my provisional diagnosis.

Starting with the *daily chills* over a three-month period, the conditions which come to the fore with me are malaria, syphilis, acute leukemia, acute inflammation becoming chronic, abscess, typhoid fever, rat-bite fever, malignant disease and enteric tuberculosis. In any of the first five in my list, a daily chill could occur. In the first two there would be ample time to make the usual test for each one and a decision could be made almost at once. Since each has a specific therapy, we should have a different story than the one given. This is strong evidence that neither of these conditions was present.

A number of years ago, I treated a patient with syphilis, who had chills daily for six months. He did not die. In those days it was a common experience to see daily chills for weeks at a stretch.

I do not see how a person could live, ill with typhoid fever, for three months and have a chill every day. On such reasoning, I would not think that typhoid could be present here, but would withhold a dogmatic opinion until reports were received on complete blood studies, including bacterial cultures.

Vomiting might go along with any of the conditions I have named; the dizziness with the weakness he had. The vomiting, except when bland foods were taken, could go with obstruction probably due to enteric tuberculosis, malignant disease, abscess and (unlikely) acute leukemia. I should require a complete gastric analysis. What did the fluoroscope show as to the time of the barium passage through the gastric and upper enteric tract? What did the roentgenograms show regarding the position and contour of the entire digestive tract? What was the character of the stools?

**Hives:** In my opinion, hives could appear in an allergic person only. They probably shed no light on the underlying condition in

\*Adapted from *Bul. Chicago M.S.*, Aug. 20, 1932.



this case. I recall reading of a case of rat-bite fever where there was periodic recurrence of hives. The intermission and abatement of all symptoms in rat-bite fever would exclude it in this case.

*Weakness and loss of weight* would go with any lingering disease with chills, fever, vomiting and ability to take only bland foods. I should like to know his best weight, weight when he became ill and the admission weight. I can see nothing to help me on this point. Before leaving his history, I should like to know his height, his occupation and residence. A man who becomes seriously ill and dies in a few weeks ought to tell us some important event out of his past life and habits. There was an unsolved problem at the start of his sickness.

I will now turn to the physical findings, in the order given us in the report, and shall try to deal with each one after the fashion used with the history. Malaria, syphilis, rat-bite fever and typhoid are practically discarded. This will leave malignant disease, enteric tuberculosis, abscess and acute leukemia to be considered.

The patient was comfortable and did not appear acutely ill. I take it that, for the moment, they were misled here as to how soon he might die, but I should like to know the color and condition of the skin; the color of the sclerae; the response and state of the pupils and the retina.

The temperature, pulse, respiration and blood pressure shed no light on my perplexities. I wonder if he had headaches and, if so, what was their character. All four of the above signs, together with the injected pharynx, fit into too many niches to be reliable for any particular disease identification.

The bilateral lymph nodes could be felt, but what was their size and consistency, and were they tender or adherent to the skin or underlying tissue? The record says that there was loss of weight, and I assume there was loss of tissue fat also. If there was loss of tissue fat, bilateral lymph nodes could be felt as discrete chains in all the regions named, and would mean exactly nothing.

Malignant disease and abscess remain to be considered; while enteric tuberculosis, if the glands really mean anything, fades out. It is said to be very unusual for tuberculosis to involve glands as widely as is reported here.

This blood report removes some of the uncertainty. With the high percentage of lymphocytes and the low leukocyte count, acute leukemia goes off the stage. It never did occupy a commanding place in either the history or, so far, in the physical findings. I can see no light on that normal red-cell count. It ought to be a trifle below normal in this long-drawn-out fight. I should like to know the hemoglobin percentage and color index. The rest of the report looks as if the resist-

ance had fallen to zero and the end was not far off.

We get almost no news from the belly, and this scant belly report intrigues me. I wonder what was there. We get the bare fact that the liver and spleen are enlarged and palpable. Did they find any mass or hardness or tenderness in the region of the liver or spleen or anywhere else in the belly? Was there any distress anywhere in the belly? When did the distress come on and what was it like?

Up to now, the field is fairly clear of all I have considered, except malignant disease and abscess. It is quite possible for malignant disease to attack a young man of 27 years, but it is improbable for it to come so early in life. Then, as we have the facts, this trouble struck out of a clear sky, which cancer does not usually do; and the daily chills are unsuited to a picture of malignant disease; and so, too, is the irregular fever, running as high as this. Last, at this patient's age, he should have run a less stormy course and death should have been farther away than a few weeks, in malignant disease.

An abscess, somewhere in the region of the liver, would fit all of the facts available more closely than any other condition I have named; and because of this, abscess is my provisional diagnosis.

#### Discussion by Dr. E. C. Junger, Soldier, Ia.

**C**HILLS and fever every day suggest, on general principles, that some foreign protein gets into the blood. The absence of sweats following the fever practically rules out malaria and pyogenic infections.

With the general lymphadenitis, we might suspect syphilis; and the indigestion suggests that the liver may be involved. Chronic cholecystitis, especially with cholelithiasis, might give practically all of these symptoms. How about jaundice, cachexia and diarrhea in this case? I should also like to see a report of a gastric analysis and a complete examination of the stools.

#### Discussion by Dr. M. Gleason, Mendota, Ill.

**T**HIS problems calls for a detailed study of the hematopoietic system. The normal red-cell count and the gradual diminution of the granulocytes, with a concomitant relative increase in the lymphocytes, in combination with the symptoms described, suggests the presence of agranulocytosis or granulopenia.

I should like to know whether the granulocytes had entirely disappeared or been further diminished before death. I should also like to know whether the total leukocyte count went below 5,100, and if so, to what figure? A more complete history, as to possible causative factors, would also be helpful.

A definite diagnosis in this case would call

for frequently repeated and complete blood studies.

**Autopsy by Dr. R. H. Jaffe, Chicago**

**E**XTERNALLY, petechial hemorrhages were present over the chest, abdomen and both forearms. Many hemorrhages also were found in the oral mucosa, where they reached the greatest diameter of 2 mm. The abdomen was slightly distended.

The superficial lymph nodes were from pea- to almond- size, discrete and firm. The spleen extended for 5 cm. below the costal arch, weighed 1,120 grams and was very soft in consistency. On the sectioned surface the pulp everted, was of light reddish-gray color and contained numerous from pin-point to 3 mm. grayish-white nodules. The heart weighed 320 grams; the myocardium was pale and friable.

Underneath the pleura of both lungs there were single, firm, up to 6 mm., dark-gray nodules, which extended for 3 mm. into the lung parenchyma. In the lymph nodes at the bifurcation of the trachea, which were enlarged and soft, light purple-gray nodules could be detected. The liver was swollen, moderately firm in consistency and of a pale yellow-gray color. The abdominal lymph nodes, including the retroperitoneal nodes, were all moderately enlarged, very soft, discrete and on sectioning showed a purplish-red mottling. The deep cervical lymph nodes were similarly involved.

The dura mater was stretched tightly over the cerebral hemispheres and on the internal aspect of the left side there was a 2 mm. thick, loosely adherent layer of coagulated blood. In the right cerebral hemisphere and in the upper half of the pons, there were many light purple-red, up to 2 mm. patches.

The histologic examination of the spleen and the abdominal, tracheobronchial and cervical lymph nodes showed the typical picture of a Hodgkin's granuloma. There were numerous foci of a pleomorphic cellular tissue with a varying amount of reticulum and large giant cells of the Sternberg type. Thus the clinical diagnosis of Hodgkin's granuloma could be verified.

The interesting feature of this case was the hemorrhagic diathesis, and it is this condition, especially the subdural and intercerebral hemorrhages, which caused the patient's death. Hemorrhagic diathesis in Hodgkin's disease is not very common. It occurs especially in the fulminating acute cases, which are often associated with a severe anemia. This patient, however, was not anemic.

During the autopsy I was struck by the soft consistency of the lymph nodes and of the splenic pulp and a septic condition was suspected. Cultures taken from the heart's blood yielded a pure growth of hemolytic streptococci. I am, therefore, of the opinion

that the severe hemorrhagic diathesis of our case was not directly due to the main condition, the Hodgkin's granuloma, but to a complicating streptococcus septicemia, the origin of which remains obscure.

**Closing Comments by George B. Lake, M.D., Waukegan, Ill.**

The history of this case was not complete enough to permit a valid diagnosis on the reported findings. Dr. Clark, in his splendid discussion, carried "malignant disease" to his semi-final elimination, on a perfectly sound basis, and gave it up, apparently, because he failed to remember that Hodgkin's granuloma falls in that class (as Geschickter explained in our April issue), and affects chiefly young adults, mostly males.

Dr. Junger was right in thinking of syphilis first, as we should always think of commoner diseases before we consider the rare ones. He should have asked for a Wassermann test. Moreover, syphilis is rarely a febrile disease and its progress is not so rapid as that of this case. Dr. Gleason's call for repeated blood studies was well based.

The blood study was confusing, as typical Hodgkin's disease shows anemia; but the leukopenia, with relative leukocytosis, would tend to rule out acute septic processes. The palpable liver and spleen practically ruled out glandular tuberculosis. The patient was too old for glandular fever and the condition was not sufficiently acute.

This problem emphasizes the need for making careful and exhaustive studies of all patients whose maladies cannot be positively diagnosed with ease. We must think of the commoner diseases first, but *we must not stop there*.

**Problem No. 8 (Surgical)**

**Presented by Dr. F. D. LaRochelle, Springfield, Mass.**

**A**N obese woman, age 43, came to the hospital for treatment of "biliary colic." She said she had had attacks for a number of years, but recently they are more severe and they come at shorter intervals. She was given a dye by mouth, twelve hours after which a roentgenogram showed a large, solitary stone in the gall-bladder and the dye in the cecum and ascending colon.

**Diagnosis:** Cholelithiasis.

**Operation:** Under Avertin anesthesia, a Kocher incision was made below the costal margin. There was a very thick layer of fat and the exposure was poor. The gall-bladder was found to be large and contained one large stone. There appeared to be no other pathologic condition. The stone was removed and a tube sutured in the gall-bladder.

The fistula drained less than usual and in

(Continued on page 393)

# CLINICAL NOTES and ABSTRACTS

## The Clinical Use of Zephedrol in Otolaryngology

THE following report is based upon the observation of the use of Zephedrol (Hille) in 35 cases, including submucous resections of the nasal septum, middle turbinectomy, removal of nasal polyps, cauterization of the inferior turbinate, and in the intumescence of the soft tissue of the nose in acute rhinitis of the infectious type, coincident with infection of the accessory nasal sinuses. The solution consists of a colloidal zinc together with ephedrine.

It has long been felt that shrinking of the soft tissues, following operations on the nose, is a desirable therapeutic procedure. It promotes drainage, helps in the prevention of the formation of senecchia and adds to the comfort of the patient. The same applies to cases of sinus infection, with the exception that, here, senecchia normally do not occur.

Various preparations have been used for this purpose from time to time, and before the discovery of ephedrine, epinephrin with cocaine seemed to have been the mixture of choice. There are, however, valid objections to the use of this mixture, the most important being the toxicity and habit-forming properties of cocaine, and the drastic but fleeting action of the epinephrin. There are many people who cannot tolerate epinephrin in the nose with any reasonable degree of comfort, except when the solution is in very high dilution, and then it is ineffective.

With the advent of ephedrine it was thought, at first, that the objectionable qualities that appear in epinephrin were absent in the newer drug. It was soon discovered, however, that aqueous solutions of ephedrine are not well tolerated in the nose, in many cases. By putting the ephedrine in an oil base, it was found that much of the irritation of the drug is obviated. Nevertheless, the shrinking effect is of too short a duration.

Of all of the combinations of ephedrine with other substances, which have so far been introduced, I am of the opinion (which, of course, may change with further experience) that the new combination produced by Dr. Hille possesses distinct and important advantages not possessed by the others. These are as follows: The solution is non-toxic;

the duration of its action is far longer than that of any preparation with which I am acquainted; it is non-irritating, and for this reason its utility, in cases characterized by hyperesthesia of the nasal mucous membrane, is obvious. The prolonged action of the preparation is due to the action of the zinc which it contains; and the fact that this otherwise harshly astringent salt is in colloidal form explains the mildness of the reaction, with its almost total absence of irritation.

The method of application used is that of topical application by means of tampons, and in drops given to the patient. The dose is from five to ten drops into each side of the nose, four or five times a day. The frequency may be increased according to indications. It may be used in an all-glass vaporizer.

Zephedrol is non-staining, has a prolonged action, does not irritate the nasal mucosa, and is non-toxic. It is an important and valuable addition to the armamentarium of the otolaryngologist.

FRANK J. NOVAK, JR., M.D.

Chicago, Ill.

### Ionization Treatment of Hay Fever\*

TEN years ago, Demetriades demonstrated a method for the treatment of hyperesthetic rhinitis, which he called "iontophoresis." In 1931, Franklin reported, in the *British Medical Journal* (Vol. 1, page 1115), a modification of this method, using 1-percent zinc sulphate solution as the electrolyte, and showed excellent results in 22 cases of hay fever, with no untoward effects.

Seven years ago I began experimenting with the Franklin method, and in 16 cases obtained better results in the treatment of hay fever than had been shown by any previous treatment used. I found, however, that, using the zinc electrode and electrolyte, the local and systemic reactions were so severe as to constitute a definite disadvantage, though not a contraindication.

I therefore began studying other metals, for both the electrode and the electrolyte, and

\**Laryngoscope*, Mar., 1934.

finally adopted a combination of zinc, cadmium and tin, which acts as well as or better than the zinc alone and produces much less severe reactions. I have also worked out a reasonably standardized technic, as follows:

The ionization treatment should be given only to patients whose noses are in a reasonably normal anatomic condition. If they are not, the deformities should first be corrected surgically.

The nasal cavities are first fully packed, for ten minutes, with long, narrow cotton strips, soaked in a 10-percent solution of cocaine in 1.5 percent ephedrine solution. Similar strips are then saturated with the ionizing solution and packed into the nose as far back as the postnasal space; the electrode is wrapped in a spiral of saturated cotton, introduced into the nose, and thoroughly packed in with more cotton saturated with the electrolyte. This packing must be so thoroughly done that all of the nasal mucosa is in contact with the saturated cotton. The resistance, when this is properly done, should not exceed 2,500 to 3,000 ohms, and is a measure of the adequacy of the packing.

When the nose is properly packed, with the electrodes in place, the direct current is turned on, slowly, up to 10 milliamperes, and is allowed to flow thus for 10 minutes, after which the packing and electrodes are carefully removed. One treatment to each nostril is generally sufficient, though two, and rarely three, are occasionally required. In the group of 40 patients thus treated, 31 required only one ionization for complete relief, and 7 more only two treatments.

Of the 40 patients, all but one have been completely relieved of their symptoms for more than a year, and 19 for more than three years; and this in view of the fact that all but 8 of the patients had received other forms of treatment, with no lasting relief. Moreover, in addition to the local improvement, there were definite signs of betterment of the general systemic condition.

In view of these facts, I feel safe in stating that ionization of the nasal mucosa, using an electrode containing zinc, cadmium and tin, with salts of these metals in the electrolyte, produces a chemical change in the patient which renders him less sensitive to substances to which he previously gave definite allergic reactions.

HAROLD L. WARWICK, M.D., F.A.C.S.  
Fort Worth, Tex.

### Female Sex Physiology\*

THE gonad-stimulating hormone or hormones of the anterior pituitary lobe totally control the structure and function of the ovary. In response to the stimulation from

\*Weekly Roster and Med. Dig., (Philadelphia), May 19, 1934.

the anterior pituitary lobe, the ovarian structures produce two hormones, estrin and progesterin.

Estrin rebuilds the dismantled endometrium of the previous menstrual cycle and finally causes, by virtue of its cumulative effect on the endometrium, structural changes therein, which result in bleeding from an interval endometrium. This form of menstruation is not uncommon in the human being, especially in those who are sterile without an accountable cause.

The growth effect of estrin is not limited to the endometrium, but is discernible in the entire lower genital tract and in the mammary glands. This hormone is also partly responsible for the secondary sex characters.

The corpus luteum, when present, produces, in addition to estrin, another hormone, progesterin, which is mainly concerned with the preparatory changes in the endometrium in anticipation of pregnancy. It neutralizes the terminal effects of estrin and maintains the integrity of the endometrium. If fertilization does not occur, the high premenstrual concentration of blood estrin so inhibits pituitary function that the corpus luteum regresses and the check on the terminal estrin influence on the endometrium is removed. Menstruation then ensues.

If the ovum is fertilized, the hormone, prolan, produced by the earliest trophoblast, either directly or through the medium of the anterior pituitary lobe, maintains the structure and function of the corpus luteum and, indirectly, the integrity of the premenstrual endometrium through the agency of the corpus luteum hormone, progesterin.

Progesterin likewise inhibits uterine contractions, which the simultaneous presence of estrin tends to accentuate, and thus adds another factor in the conservation of pregnancy.

CHARLES MAZER, M.D.

Philadelphia, Pa.

### General Treatment of Skull Injuries and Increased Intracranial Pressure\*

IT is our practice not to employ morphine in skull injuries. It often has an irritating effect on the patient, raises intracranial pressure and masks the symptoms.

Lumbar puncture is carried out, both as a diagnostic and a therapeutic measure. Hypertonic dextrose solution is employed for the purpose of dehydrating the brain. We usually administer 100 cc. of 50-percent dextrose solution intravenously, three times a day. This is given directly from the ampule, if possible, in order to forestall chills. Caffeine-sodium benzoate is administered by hypodermic injection, in doses of 7½ grains (0.5 Gm.) every

\*New York St. J. Med., Feb. 1, 1933.



four hours. By means of rectal instillation or a rectal drip, 100 cc. of 25-percent dextrose solution is given every four hours.

The head of the bed is elevated from 30 to 60 degrees. In cases of suspected epidemic meningitis, antimeningococcus serum is administered. Ventricular puncture is carried out only if these measures prove inadequate.

Operative procedures are necessary in compound fractures of the skull and in cases in which the presence of middle meningeal hemorrhage or subdural bleeding is suspected.

In cases of brain abscess, it is advisable to make a trephine exploration over the suspected zone and evacuate the pus; this, however, should not be done until a period of four to six weeks has elapsed, in order to permit capsule formation and localization.

In cases of apoplexy, the patient is placed in a lateral position, with the tongue held forward. Bromides and chloral are administered for restlessness. In the plethoric, hypertensive cases, venesection is carried out.

In cases of uremia venesection is practiced, followed by the injection of physiologic salt solution to dilute the toxins.

E. D. FRIEDMAN, M.D.

New York City.

### Hydrochloric Acid in Pelvic Cellulitis

IN reading Dr. Miller's article on chronic leukorrhea, in the May, 1934, issue of *CLINICAL MEDICINE AND SURGERY*, I find that he recommends, for the treatment of pelvic cellulitis, transfusion, rest and the use of an ice bag. All of these measures have been in use for twenty years, and still one out of every 400 parturient women dies of puerperal sepsis and ten are invalidated for life.

For several years I have been treating my patients with pelvic cellulitis with intravenous injections of hydrochloric acid, 1:1,500, giving 10 cc. every day until they are well—and they all recover.

At first I was afraid to use this acid, because it had received so much adverse criticism from men (some of them in positions of authority) who were supposed to know what they were talking about. Now I realize that they knew nothing about it, in a clinical way, and were simply repeating the old superstition, that is dangerous to inject a mineral acid into the blood stream. I have given more than 2,300 such injections, and have never seen an alarming symptom. I give about 100 injections a month, and the results surpass anything I have seen with other treatments.

My first case of this sort made a believer of me. The patient was a girl 15 years old, weighing 90 pounds; and the child, born after a prolonged and difficult labor, weighed 12 pounds.

On the third day she had a chill and a

high fever; and when I saw her on the fourth day she was in a desperate condition. Her temperature was 106°F.; pulse 140; respiration, 40; lochial discharge scant and foul-smelling; a mass the size of a coconut in the left lower abdominal quadrant; and she was delirious.

I immediately gave her 10 cc. of 1:1,500 hydrochloric acid, intravenously, and in less than an hour she was sweating profusely; her temperature was 103°F.; her pulse much slower; and her respiration 25. I repeated the dose each day for five days, when she was out of danger and the mass in her pelvis had disappeared. I am satisfied that this treatment will save 98 percent of patients of this type.

### Nephritis

Last autumn I saw a boy with severe nephritis following scarlet fever. His urine showed albumin plus 4. I put him on a salt-free and low-protein diet and gave the usual remedies for three months, but without effect. I then gave him an intramuscular injection of hydrochloric acid, 1:500, in the gluteal muscles, every day for five days. The albumin in the urine began to diminish at once, and in 21 days disappeared entirely. I have treated other similar cases, with the same results.

In order to test the leukocyte response from this acid, I, myself, took an intravenous injection of 10 cc. of hydrochloric acid, 1:1,500. Before the injection my leukocyte count was 7,300; an hour and forty minutes later it was 9,800.

It is my conviction that those who are trying to discredit hydrochloric acid know nothing whatever about it and are too smug and complacent to learn. Since I began using it, my practice has grown by leaps and bounds. One satisfied patient tells another, and so an endless chain is formed. Those who once try it will be "sold on it" for life.

WILLIAM I. HOWELL, M.D.

Lexington, Tenn.

### Treatment of Periodic Headache With Chondroitin Sulphuric Acid\*

CHONDROITIN sulphuric acid has been administered to 42 patients with idiopathic headache. More than 50 percent have been markedly benefited and another 30 percent appear to be partially relieved. The cases are classified as migraine, migranoid or simple headache, and the percentage of improvement in the three groups is similar.

Chondroitin consists of two molecules of glycuronic acid, two of acetylated galactosamine and two sulphate radicals.

In most cases we have administered 3 Gm. of chondroitin per day, either in the form

\**Illinois M. J.*, June, 1933.



of powder or in capsules. Occasionally the dose has been increased or decreased, to determine whether a response could be obtained in cases not benefited by the above doses; but the optional dose has appeared to be 3 Gm. per day, given three times daily in divided doses or as the whole amount once daily. The period of treatment has varied from 2 to 12 months. No other medication was permitted, with the exception of analgesics for the relief of acute pain.

It seemed desirable to test the action of other compounds containing glycuronic acid. Accordingly 20 patients were placed on the calcium salt of galacto-glycuronic acid, which was prepared for us by the courtesy of the Abbott Laboratories. This material contains 46 percent of glycuronic acid and the dose was calculated so that an amount of that drug, equal to that in 3 Gm. of chondroitin, was administered daily. In only 1 case did this substance have an effect comparable to that of chondroitin.

We believe that this series of cases warrants the tentative conclusion that chondroitin sulphuric acid is of benefit in more than half of the cases of idiopathic headache, including migraine.

LATHAN A. CRANDALL, JR., M.D., and  
GEORGE M. ROBERTS, M.D.

Chicago, Ill.

### Treatment of Acute Coronary Occlusion\*

**A**BSOLUTE rest in bed is the treatment of greatest importance in coronary occlusion. Continue it from four to six weeks as a minimum; longer, if the blood pressure is elevated. Few medical emergencies are so poorly treated—often because the patient does not feel sick enough to call a doctor and often because of such diagnoses as ptomaine poisoning, acute indigestion, pleuritic pains, gastritis and neuritis. A large number of the cases are atypical, judging from the descriptions in the medical books and periodicals—the symptoms of collapse, anginal pain, etc., not being so pronounced as one expects. Many coronary occlusions occur without symptoms indicating infarction and others occur with symptoms that are mild and transitory. It is always an emergency, even though the patient considers the symptoms trivial.

Rest is conducive to healing of the infarcted area. Drugs are of secondary value. Pain is usually the first symptom demanding treatment and morphine is usually administered liberally, but since the pain is due primarily to deficient oxidation in the infarcted area, oxygen (administered under a modern tent providing a full fifty percent

oxygen atmosphere) will relieve it in many or all cases and may diminish the area of necrosis. Oxygen should not be reserved, as heretofore, only for those cases exhibiting cyanosis or dyspnea.

To give digitalis is a mistake in most cases, because of its action in reducing conductivity and increasing irritability. In general, it should not be used unless clearly indicated for atrial fibrillation or congestive failure. If stimulation is really indicated by a very poor circulation, caffeine recommends itself because of its probable dilating effect on the coronary arteries. Strophanthine and epinephrin should be reserved for desperate emergencies. In heart-block I use oxygen as first choice, then epinephrin in small, frequent, subcutaneous doses.

Ventricular fibrillation probably accounts for a large proportion of the sudden deaths from coronary thrombosis. It may result from large or small infarctions and often comes as the first disorder of the heart-beat mechanism. It should be prevented, if possible. Quinidine has been found to inhibit ventricular fibrillation and I prescribe it routinely every eight hours, in 0.2 Gm. doses, during the first two months following coronary occlusion. I also include 0.6 Gm. of theobromin-sodium salicylate with each dose of quinidine, in the same capsule, during the first ten days because of its probable dilating effect on the coronaries.

Adequate nourishment is important and should include a liberal supply of vitamins, especially vitamin C in the form of fresh citrus fruit juice. Dextrose is especially valuable in threatened heart failure and may be given intravenously, in small amounts, frequently, or by hypodermoclysis. In concomitant diabetes mellitus or syphilis, specific treatment should be neglected until the acute stage of the thrombosis is passed.

EUGENE S. KILGORE, M.D.

San Francisco.

### Respiratory Manifestations in Circulatory Disease\*

**T**HE functional respiratory disturbances, dyspnea, orthopnea, cardiac asthma and Cheyne-Stokes breathing, we find are compensatory measures aiming to remove the excess of CO<sub>2</sub> resulting from want of oxygen in the respiratory center. This lack of oxygen, in all likelihood, is due to weakness of the left ventricle.

A frequent sequel of ventricular weakness, dramatic in its onset and threatening in its course, is an acute pulmonary edema coming on suddenly with alarming symptoms of op-

\*J.A.M.A., Feb. 4, 1933.

\*Illinois M. J., Feb., 1933.

pression in the chest, dyspnea, orthopnea, cyanosis, incessant short cough, cold clammy sweat and a profuse, frothy, pinkish sputum, ending fatally or subsiding. The symptoms, the age of the patient and the markedly enlarged heart differentiate it from bronchial asthma.

The treatment is prompt venesection, unless the pulse is weak or the hemoglobin is below 60 percent. Morphine and atropine are always of great service and, in the plethoric with a hard pulse, croton oil under the tongue serves well.

I. M. TRACE, M.D.

Chicago.

Look for **FACTS AND COMMENTS** among the advertising pages at the back.

### Spinal Anesthesia\*

THE new technic which we are presenting is especially adaptable to the beginner, in that it controls upward diffusion of the anesthetic. As a diluent we have selected the patient's own blood serum, because it is diffusible and non-irritating and is heavier than cerebrospinal fluid. The blood is usually withdrawn the evening before the operation and immediately centrifugated for 15 minutes at 1,500 revolutions per minute.

At the time of operation, 3 cc. of serum is mixed with 100 to 150 mgm. of procaine hydrochloride. The patient is placed on the operating table in the upright position, the dorsal lumbar region is painted with tincture of iodine and the needle is inserted into the third lumbar interspace. The spinal pressure is taken immediately (this is routine), because the pressure is usually an indication of the amount of fluid in the canal. Then the serum-anesthetic mixture is injected *very slowly*, over a period of 40 to 60 seconds.

If the patient is placed on the operating table with the torso at a 135-degree angle with the thighs, the perineum, thighs, feet and legs will become anesthetized, usually without paralysis of the motor nerves. If higher anesthesia is desired, the patient is placed in the supine position for three minutes; then the head of the operating table is raised to a 160-degree angle. Anesthesia to the anterior superior spine is usually obtained in this way.

Using this technic, we have performed operations on the lower extremities, the perineum, the inguinal region and the abdomen below the umbilicus. We have not perfected a technic for the upper part of the abdomen. Following the use of 100 mgm. of procaine hydrochloride, anesthesia of the perineum has persisted for two hours and 35 minutes. The

duration is less with change of position to obtain higher anesthesia.

With this method there is less possibility of the drug affecting the nerves of the heart and of the respiratory muscles. High diffusion can occur, however, and patients should be selected for this technic. We have observed a rise in systolic blood pressure in 68.67 percent of cases; no change in 19.28 percent; and an initial decrease in 12.05 percent. When decrease occurred, it was most marked when anesthesia extended above the costal margin; was less when between the iliac crest and costal margin; and lowest when below the iliac crest. In two instances the cardiac and respiratory nerves were partially paralyzed and the diastolic and systolic pressures could not be taken. In one of these cases the high diffusion was due to a too-rapid injection of the anesthetic. We have always attempted to limit the diffusion of the anesthetic to the upper border of the sixth rib.

This technic is safer than others reported and thus will decrease the mortality, which is particularly high for the beginner.

DRS. J. O. BOWER, J. H. CLARK and  
J. C. BURNS.

Philadelphia, Pa.

### Sclerosing Solutions in the Treatment of Cysts and Fistulas\*

THE use of powerful sclerosing salves in the treatment of fistulas and hemorrhoids is old. As far back as 1829, there is a record of a case of fistula of the neck treated successfully in this way.

For the past year we have made wide application of this method of therapy in a variety of clinical conditions. A modification of Carnoy's solution was the most efficacious fluid we could use. This solution is made up as follows:

Absolute alcohol.....	6 cc.
Chloroform.....	3 cc.
Glacial acetic acid.....	1 cc.
Ferric chloride.....	1 Gm.

The solution has the qualities of moderate penetration, with rapid local fixation of the living cells and excellent hemostasis.

We have reported here cases of gliomatous cysts (astrocytomatous type), cervical fistulas and pilonidal sinuses, in which this modification of Carnoy's Solution, used as a sclerosing agent, has either greatly assisted in making an operation more complete, as in the case of gliomatous cysts, or has been able to cure the condition without radical surgery, as in the cases of cervical fistulas and pilonidal sinuses.

In the case of cysts, the solution was swabbed on the walls of the opened cyst for

\*J.A.M.A., Jan. 28, 1933.

\*Am. J. Surg., March, 1933.

one minute. In cases of fistula and pilonidal sinus it was injected under pressure, after location and exploration. The method is ambulatory and the ordeal of a radical operation is often avoided. It is our chief hope that the general surgeon, as well as the neurologic surgeon, will see the value and implications presented by these case reports.

ELLIOTT C. CUTLER, M.D.  
and ROBERT ZOLLINGER, M.D.

Boston, Mass.

### A Five-Year Study of Abortion\*

THIS study includes the 341 cases of abortion that were taken care of in the Multnomah County Hospital, from January 1927 to January 1932. They were classified as follows: threatened, 18; inevitable, 61; incomplete, 261; therapeutic, one. The abortion was spontaneous in 169 cases. In 149 cases it was induced, either by the patient or an abortionist. In 22 other cases the passage of an instrument or foreign body into the uterus was suspected. The catheter was the most popular instrument used for self-abortion, being resorted to in 34 cases. The slippery-elm stick was second in popularity, being used by 24 patients. Other appliances used were crochet hooks, nail files, syringe tips, a nut-cracker and a case knife. Among the different drugs used were ergot, turpentine and quinine, the last being the most popular.

Previous abortions were admitted by 176 patients: 88 having had one, 42 two and 27 three; one had had eleven. In our series, 133 occurred between the first and second months of pregnancy, and 101 between the second and third months. The others occurred during the first month, or after the third—some as late as the twenty-eighth week. Pain, chills, fever, bleeding, nausea and vomiting were the most common symptoms.

The temperature was normal in 34 patients throughout their hospital stay. Fever was present in 307 cases. In 193 cases, the temperature did not rise above 100.6°F. In 144 cases, there was sepsis, with temperature above 100.6°. The highest temperature reached was 105°.

Thirty-nine (39) patients had a severe, prolonged illness (all were cases of incomplete abortion), but only two died. Complications in these 39 cases consisted of pelvic cellulitis in 14, pelvic abscess in 3, phlebitis in 2, and suspected thrombophlebitis in 8.

Conservatism is necessary in handling abortion cases. Our routine orders are as follows: (1) Absolute rest in bed; (2) a nourishing diet, forcing fluids, and plenty of fresh air; (3) elevate head of bed 12 inches, except in severe hemorrhage; (4) ice bag to

pelvis; (5) codeine or morphine for pain, as needed; (6) no vaginal douches; (7) no vaginal examination, except by the attending gynecologist or by his special order; (8) for bleeding, give one-half dram (2.0 cc.) fluid extract of ergot every four hours, supplemented with pituitrin if necessary. Control dangerous hemorrhage by special means, such as packing the uterus or removal of the placenta, if indicated; (9) leukocyte count and sedimentation rate determined every fourth day, as a guide in management; (10) no surgical interference unless an abscess is pointing extraperitoneally, such as culdesac or abdominal wall abscess; (11) five days or more of normal temperature, absence of leukocytosis and a normal sedimentation rate are desirable before removing the remaining placenta, if such is necessary; (12) give dextrose or saline solutions intravenously, subcutaneously and rectally in dehydrated cases or as needed in hemorrhage, shock or sepsis.

Under such management, 225 of our cases recovered without operative invasion of the uterus. In 36 instances, hemorrhage was so marked that immediate surgical interference was necessary, the placenta being removed, either by sponge forceps or gentle curettage. Retained placenta, causing moderate bleeding, was the indication for evacuation of the uterus in 78 others. There were 3 deaths in 341 cases—a mortality rate of 0.88 percent.

RAYMOND E. WATKINS, M.D.

Portland, Ore.

### The Treatment of Chorea Minor\*

NIRVANOL (phenylethylhydantoin) is extensively used, especially in Europe, for the treatment of chorea. When given over a consecutive period of days, the drug will produce a syndrome which is clinically evidenced by a rash, fever and increased pulse rate.

In properly controlled cases, without evidences of existing complications, there seems to be no danger from the use of Nirvanol in the treatment of chorea minor in childhood. I made clinical observations on eleven cases treated in the East London Hospital for Children in 1929, with the use of Nirvanol, and, subsequently, I have used the drug in five cases in private practice. In all of these cases the end results were favorable enough to warrant, in my mind, a greater acceptance and use of this form of therapy as being the type of treatment which will probably produce the best results of any known form of therapy existent today, particularly in severe cases of chorea minor. By the use of Nirvanol and the shortening

\*A. J. Obst. and Gyn., August, 1933.

\*Illinois M. J., Feb., 1933.

of the active stage of chorea, the incidence of subsequent carditis may be lessened.

There is no definite reason why Nirvanol may not be used in even the mildest cases of chorea.

WALTER M. WHITAKER, M.D.

Quincy, Illinois.

### Diet and Dentition\*

**A** S YOUR teeth go, so does your body go." *Proteins:* Do not affect teeth, but contain phosphorus.

*Fats:* No influence in themselves, only they contain vitamins A and D.

*Carbohydrates:* Caries is arrested or improved by a low-starch diet. Bunting fed rats on a dry, lean-meat diet and they became lean, mangy, and would not breed; teeth and bones became white and brittle, but no caries developed until soon after starches were added.

Mellanby and Pattison (*Brit. M.J.*, Mar., 1932) appear to blame caries more to cereal foods than to vitamin deficiency.

*Calcium and Phosphorus:* Essential to diet, but dependent on vitamin D present. If adequate vitamin D is present, tooth structure may be perfect, in spite of low calcium and phosphorus.

*Vitamin D:* In bone and teeth formation, a jelly-like mass, known as osteoid or predentine, is laid down by the action of osteoblasts and odontoblasts. Next calcium salts are deposited in this matrix, for which process vitamin D is necessary. If vitamin D is lacking, the deposition of calcium is slight and irregular and additional predentine or osteoid is laid down in an irregular manner. The dentine is then more porous and sponge-like, and less resistant to mechanical and chemical injury; the enamel is more brittle, more easily cracked, more subject to fissures, and may be thin, irregularly distributed or entirely absent in some areas. The jaws are thicker than normal, soft, spongy and showing much uncalcified osteoid. Softened jaws are readily deformed by mechanical stress, leading to malposition. Vitamin D is necessary for the maintenance of normal function and health of fully developed teeth.

*Vitamin A:* No calcifying action, but its presence maintains the health of the peridental tissues, and its deficiency is probably an important predisposing cause of pyorrhea. It is present in milk-fat, egg yolk, cod-liver oil, green leafy vegetables and carrots.

*Vitamin C:* Deficiency causes degeneration of pulp tissue, and may be the seat of hemorrhages; odontoblastic layers are disorgan-

ized and cease to form normal dentine; dentine may be resorbed and liquefied; and any predentine present is irregular and poorly calcified. It is present in citrus fruits and tomatoes, but is largely destroyed by heating.

*Vitamins B, G and E:* No effect on teeth; but are essential to life.

CHARLES A. SWEET, D.D.S., F.A.C.D.

Oakland, Calif.

### Dilaudid-Scopolamine in Obstetrics\*

**O**UR series in which Dilaudid was used consisted of 101 cases, of which 59 were primiparas and 42 were multiparas. Dilaudid was used in the 1/32 gr. (2 mgm.) ampule form, combined with 1/130 gr. ampule of scopolamine hydrobromide and administered subcutaneously. Narcosis was begun in primiparas when the cervix was dilated from 3.5 to 4 cm., and in multiparas when the cervix was dilated 2.5 cm., if the quality of the uterine contractions was good. In all cases, routine injection of scopolamine was used as follows: Forty-five minutes after the original Dilaudid-scopolamine injection, 1/130 gr. scopolamine was repeated; forty-five minutes later, 1/260 gr. scopolamine; every hour or so thereafter, as needed, 1/260 gr. of scopolamine.

Dilaudid and scopolamine is a satisfactory combination for semianesthesia for use in obstetric cases. In this combination Dilaudid has advantages over morphine, in that it is quicker in action and less apt to nauseate. In our series there was very little interference from Dilaudid with the strength and frequency of the uterine contractions and no untoward effects of the drug on the child were observed.

WALTER A. RUCH, M.D.

Memphis, Tenn.

### The Seminar

(Continued from page 386)

twenty days the wound was healed. During the next week she complained of attacks of severe pain in the right upper quadrant, radiating across the upper abdomen. She vomited and there was a slight elevation of temperature. After ten days the fistula reopened and drained pus and little bile, with some relief, yet the attacks recurred daily and became very severe. A medical consultant diagnosed pancreatitis and advised against operation.

*Requirement:* What is the nature of this complication and what is the proper course to pursue?

\**Internat. J. of Orthodon. and Dent. for Children*, Oct., 1933, 19: 1050.

\**A. J. Obst. & Gyn.*, May, 1934.

# DIAGNOSTIC POINTERS

## Nonprotein Allergy

IMMUNOLOGISTS have been puzzled by anaphylactic phenomena aroused by inhalation of coal tar gases or by administration of nonantigenic crystalloids. This is now made clearer by what is known as the "Landsteiner phenomenon."

Landsteiner and his co-workers found that, while numerous crystalloids are, in themselves, apparently nonantigenic, they acquire demonstrable specific antigenic powers when conjugated with protein "carriers." The resulting protein conjugate, injected into experimental animals, leads to the development of what may be conveniently pictured as a "duplex antiserum"; that is, a serum combining both antiprotein and anticrystalloid functions. By means of the anticrystalloid fraction (or function) the crystalloid can be detected and identified, either in its free state or when combined with a protein. In either case the identification is made with the same ease and certainty with which *Bacillus typhosus*, for example, can be differentiated from the colon bacillus.—Editorial in *J.A.M.A.*, Apr. 30, 1932.

## Hematemesis

THE most common cause of hematemesis will be found in intrinsic gastric, duodenal or jejunal lesions. Peptic ulcer is by far the most common cause of this symptom. It is well to remember that indigestion and hemorrhage usually mean an intrinsic gastrointestinal lesion.

Diseases in which varices are likely to develop are next in importance in the production of hematemesis; they account for 5.5 per cent in a series of 668 cases.—Drs. A. B. RIVERS AND D. L. WILBUR, of Rochester, Minn., in *J.A.M.A.*, May 7, 1932.

## Adenoids and Immunity

THE ADENOID is a physiologic and lymphatic structure, with a definite form and admirably designed to expose the greatest possible lymphatic surface as a barrier to the entrance of nasal infection through the nasopharyngeal mucosa into the general circulation.

In a series of more than 300 children, the adenoids were left at the time the tonsils were removed. Daily expulsive blowing exercises were insisted on as after-treatment.

Nasal breathing improved; colds and sinus symptoms and acute and chronic aural conditions were less frequent.—Dr. H. B. LEMERE, Los Angeles, in *Am. J. Dis. Child.*, June, 1932.

## Menopausal Bleeding

AN abnormal bleeding at or near the menopause, the physician should not be content with anything short of a positive diagnosis as to its cause. Biopsy of cervical tissue or examination of material removed by the curet affords, in certain cases, a sure means of diagnosis.

X-ray treatment should never be employed until carcinoma has been excluded.

Physicians and nurses should constantly seek to dispel the false views held by many women concerning menopausal bleeding.—Dr. JAS. E. KING, of Buffalo, in *New York St. J. M.*, Apr. 1, 1932.

## Preventing Sloughs During Injection of Varicose Veins

TO prevent sloughs during the injection treatment of varicose veins, 0.4 percent methylene blue is incorporated in the sclerosing fluid. A special type of syringe, devised by the author, is used. A blue stain around the needle is a signal that the fluid is entering the perivascular area. Even with good technic by the ordinary method, a perivascular injection may occur without the operator being aware of it.—Dr. H. BIEGELEISEN, of New York, in *Am. J. Surg.*, June, 1932.

## Thoracic Empyema

PNEUMONIA is common; delayed resolution is very rare; but empyema occurs in 5 percent of the cases. If fever continues after pneumonia, suspect empyema and make a puncture for diagnosis.—Dr. GEORGE P. MULLER, Philadelphia, Pa.

## Abdominal Pain Due to Hypothyroidism

ATTENTION is called to hypothyroidism as a factor in producing abdominal pain, and to emphasize that patients giving negative roentgen-ray evidence of changes in the gastrointestinal tract, the gall-bladder and the genito-urinary region, as well as negative results in the other laboratory procedures, may, in a small percentage of cases, be suffering



from hypothyroidism; in this group with negative roentgen-ray observations, a metabolic determination should be done before any treatment or exploratory laparotomy.—Dr. J. W. HINTON, of New York, in *J. A. M. A.*, May 14, 1932.

### Kidney Function Tests

**B**ECAUSE of its simplicity, we are liable to overlook the importance of the information gleaned from a specific gravity reading of a single specimen of urine. Generally speaking, we may regard a kidney function as normal if the specific gravity is 1.020 or above, unless there is retention of water and salt. Mosenthal is responsible for the statement: "A urinary specific gravity of 1.020 or higher, in any specimen of urine, indicates that the kidney function is adequate to excretions of solids, and if any impairment exists, it is due to the retention of water. The occasional exceptions observed have been in the cases of alkalosis and also in intestinal obstruction and peritonitis."

No one kidney function test is sufficient in all cases and no study of renal function, even in the mildest nephritis, is sufficiently complete unless all tests of proved value have been made and correlated.—Dr. A. F. WEYERBACHER, of Indianapolis, in *J. Indiana S. M. A.*, Apr., 1932.

### Silent Endocarditis

**A**CASE is reported in which a mitral valve lesion developed entirely without symptoms except tachycardia.—Dr. DON C. SUTTON, of Chicago, in *Illinois M. J.*, May, 1932.

**Read the Ads. Ask for literature and samples. Mention "C. M. & S."**

### Symptoms in Neuroses

**T**HE autonomic symptoms in the nervous patient are no less real than vegetative nervous reflexes in the patient with organic disease. The mechanism of the symptomatology in the two classes of patients is very much the same. The stimulus is different; the reflex arcs are different; but the effects may differ not at all and may be even more poignant to the sensitive patient with a functional disturbance. In a neurosis we have, not a weakening of nervous function, but an increased intensity of reflex activity.—THOMAS P. SPRUNT, M.D., F.A.C.P., in *Ann. Int. Med.*, Aug., 1933.

### Hypothyroidism

**S**LIGHT to moderate degrees of hypothyroidism may be very important causal factors in a number of gynecologic and obstetric conditions, including amenorrhea and, more frequently, menorrhagia and probably also abortion, miscarriage, premature labor and death of the fetus.—Dr. S. D. BRECKINRIDGE of Lexington, Ky., in *Am. J. Obstet. & Gynec.*, June, 1932.

### Glycosuria and Diabetes

**A**PATIENT may be diabetic without showing sugar in the urine. The upper limit of normal blood-sugar is 120 mgm. per 100 cc., but it rarely appears in the urine before the blood-sugar reaches 160 mgm. In suspicious cases, have the blood-sugar estimated.—Dr. T. C. ABEL, Chicago.

### Gastro-Intestinal Allergy

**R**EACTIONS due to the ingestion of food to which a patient has become sensitized range widely from brief but excruciating attacks of pain to mere discomfort described as indigestion. A history of skin manifestations of allergy should make one suspicious of a similar reaction within the gastro-intestinal tract; a definite history of associated allergy is, however, frequently missing.—Dr. L. P. GAY, in *J. Missouri M. A.*, Jan., 1932.

### Eosinophiles and Allergy

**T**O MOST physicians, eosinophilia suggests infestation with animal parasites. Today it is recognized that it may point to an allergic state, which may underlie, not only asthma, hay-fever and urticaria, but also many headaches, ulcers, skin eruptions, gastric symptoms, colitis, nervousness, "colds," etc.—Dr. T. C. F. ABEL, Chicago.

### pH of Urine

**T**HE test is made with a 0.04 percent solution of chlorphenol red, using one drop to 20 drops of urine. If the urine is very acid (pH below 5.4) the solution is decolorized; while with less acidity the color changes through various shades of pink to deep red, when approaching neutrality or alkalinity. This will replace the more expensive and complicated pH tests.—Dr. RUSSELL HEROLD, Chicago.

# NEW BOOKS

Any book reviewed in these columns will be procured for our readers if the order, addressed to CLINICAL MEDICINE AND SURGERY, Medical & Dental Arts Bldg., Waukegan, Ill., is accompanied by a check for the published price of the book.

*A book, fitly chosen, is a lifelong friend.*—JERROLD.

## Gutman: Drug Encyclopedia

**MODERN DRUG ENCYCLOPEDIA AND THERAPEUTIC GUIDE.** A presentation of 8160 modern, non-pharmacopeal, medicinal preparations. By Jacob Gutman, M.D., Phar. D., F.A.C.P., Consulting Physician, Manhattan General Hospital, New York; Director, Brooklyn Diagnostic Institute, etc. New York: Paul B. Hoeber, Inc. 1934. Price, \$7.50.

In spite of declarations to the contrary, the modern clinician would be decidedly handicapped if his therapeutic armamentarium were confined to the drugs listed in the Pharmacopoeia and the National Formulary and those given official acceptance.

Hitherto there has been no single volume in which a physician could find information about all the available preparations offered by the pharmaceutical manufacturers, whose research staffs are always a jump or two ahead of the official recognizers.

Here is an honest and highly successful endeavor to present, without favoritism or invidious discrimination, all the non-official products that are popular with the medical profession, giving their official names (if any); chemical formulas of single drugs (if known) or the composition of compounds; their physiologic action and uses; methods of administration; and the doses (apothecaries and metric) recommended, by injection, by mouth or otherwise.

Separate chapters are devoted to preparations of similar character, and in each the products are listed alphabetically, giving the name of the manufacturer or distributor in parentheses. In another section of the book is an alphabetic list of all the important drug manufacturers and distributors, followed by a list of their most interesting and valuable products.

In order to make the nearly 1,200 pages of strictly practical information readily usable by the busy doctor, 200 pages more are occupied with a therapeutic index, showing the drugs available for the treatment of various disease conditions, and a drug index, for the prompt finding of the information regarding any medicinal preparation listed in the book.

Rarely does a publication appear which contains, within one pair of covers, such a large amount of practical information which every clinician needs every day in connection with his work. Any practicing physician who denies himself the real help given by this book will be doing himself and his patients

an injustice, and will probably waste, every week, in looking for the facts he could readily and promptly find in these pages, an amount of time worth more than the price of this volume.

## Key and Conwell: Fractures, Dislocations and Sprains

**THE MANAGEMENT OF FRACTURES, DISLOCATIONS AND SPRAINS.** By John Albert Key, B.S., M.D. Clinical Professor of Orthopedic Surgery, Washington University School of Medicine; Associate Surgeon, Barnes, Children's and Jewish Hospitals, St. Louis; and H. Earle Conwell, M.D., F.A.C.S., Orthopedic Surgeon for the Tennessee Coal, Iron and Railroad Company, Birmingham, Alabama; Orthopedic Chief of the Traumatic and Orthopedic Services of the Employees' Hospital, Fairfield, Alabama; Member of the Fracture Committee of the American College of Surgeons, and the Advisory Editorial Staff of the Journal of Bone and Joint Surgery. With 1,165 illustrations. St. Louis: The C. V. Mosby Company. 1934. \$15.00.

There would be no sense in publishing "just another book on fractures," which would chop up dead wood and rearrange it somewhat. This is something different.

Two men of extensive and varied experience in emergency orthopedic work have begun at the beginning and told all about the methods of treatment in such cases which they personally know will work. They have left nothing to uncertainty. All is here—etiology, symptoms, diagnosis, management, the handling of complications and the transportation of fracture patients. For the benefit of those who cannot always call upon a roentgenologist for help, special and detailed instructions are given for making an accurate fracture diagnosis by physical examination alone.

All the modern methods of treatment in general use, from the simplest to the most elaborate, are carefully described, so that everyone, from the country doctor to the specializing orthopedist in the city hospital, will find what he needs to know, from the skull to the metatarsal bones, all arranged in orderly sequence.

There are more than 1,100 clear, new illustrations, used freely in order to make everything easily understood. The type is large and readable, the paper good, and the index ample.

The medico-legal aspects of fracture cases are so important that a chapter is devoted to them, including a discussion of first-aid and compensation laws.

This fine big book, of nearly 1,200 pages, contains all that the average general practitioner needs to know on the subject of fractures, dislocations and sprains, and those who do not have it in their libraries will be under some handicap. The surgeon, the orthopedist, the industrial physician, and in fact all who ever treat emergencies also need it. The price may, at first sight, appear a bit high, but it proves to be an investment for any active clinician. It is really a library on its subject, and probably will not require extensive revision for years.

### Coke: Colds and Hay Fever

**COLDS AND HAY FEVER.** By Frank Coke, F.R.C.S. Baltimore, Md.: William Wood and Company. 1933. Price, \$2.00.

This very practical and handy little volume contains six chapters, as follows: I, Normal Functions of the Nose; II, Common Cold or Infective Coryza; III, Hay Fever; IV, Other Allergic Causes of Sneezing; V, Paroxysmal Rhinitis; VI, Chronic Nasal Catarrh. The author states that he first considered "Sneezing" as the title but that "Colds and Hay Fever" seemed more appropriate. We believe his choice was made wisely as "Colds and Hay Fever" has more scientific appeal and suggests comprehensive consideration of these disorders. It is strictly a professional treatise, well written, and readily readable. The section of most immediate practical interest is on page 59, "Active Methods of Aborting a Cold." The author lists a preparation, explains its use, and states: "So sure is its action that failure should lead one to suspect a heavier microbic infection . . . than is apparent by the symptoms." Reading of this book will surely be to the average practitioner's advantage. It covers its general subject admirably, and, what is most important, practically.

### Merck Manual of Therapeutics

**THE MERCK MANUAL OF THERAPEUTICS AND MATERIA MEDICA.** A source of ready reference for the physician. Sixth Edition. Fabrikoid. 1,379 pages. Compiled and published by Merck & Co. Inc., Rahway, N. J. 1934. Price, \$2.00.

This, the sixth and outstanding edition of a well known and favorably accepted publication, not only has been enlarged and thoroughly revised, but contains many interesting new features. Unique and refreshing is the ready reference which may be made to this volume during busy professional hours, when neither time nor expediency permit of extensive library consultation.

In the therapeutic portion of the more than 1,300 pages, which has been prepared by Dr. Bernard Fantus, professor of therapeutics, College of Medicine of the University of Illinois, 257 pathologic conditions are presented alphabetically, with reference to etiology,

diagnosis and therapy. Over 2,000 prescription formulas, chiefly covering official constituents, with metric system equivalents, are provided. These are arranged in numerical sequence, with reference to the use of each in the therapy.

The discussion on therapy is an interesting departure in a book of this type and is a favorable contrast to the stereotyped presentations frequently encountered in more extensive treatises. There is the constant reminder that the patient, as well as the disease, is being treated, and that general regimen, diet and psychotherapy are, not merely accessories, but frequently fundamentals in practical therapy.

In line with contemporary medical progress, there have been included, many important subjects such as the reclassifications of anemia, the therapy of myasthenia gravis, the differential diagnosis of uremia, dyspnea, and other conditions, contained in the various tables. The chapters on Pneumonia, Pain, Diabetes, Syphilis, Nephritis, Shock and Collapse, in themselves, would justify the publication of this *vade mecum*, which is a book that every clinician should have within reach at all times. It is small enough to be easily handled; well printed and substantially bound in fabricoid; and contains an almost unbelievable amount of practical and accessible information. The modest price scarcely covers the cost of printing and distribution, and is no index of its real value.

### Heitzmann: Urinary Analysis and Diagnosis

**URINARY ANALYSIS AND DIAGNOSIS BY MICROSCOPICAL AND CHEMICAL EXAMINATION.** By Louis Heitzmann, M. D., formerly Professor of Pathology and Bacteriology, Fordham University School of Medicine, New York City. Sixth Revised Edition. With one hundred thirty-one illustrations and a chapter on the Determination of the Functional Efficiency of the Kidneys by Walter Dannreuther, M.D., F.A.C.S., Professor of Gynecology and Director of the Department, New York Post-Graduate Medical School and Hospital, Columbia University. Baltimore: William Wood and Company. 1934. Price, \$5.00.

The sixth edition of this professionally popular book contains many additions—and extensive changes have been made—although the general plan of previous editions has been adhered to. The text has been thoroughly revised and new chemical tests have been listed and described. Great stress has been laid upon microscopic examination and microscopic diagnosis. Therein lies much of the book's outstanding value. The illustrations have been drawn by the author directly from specimens in his possession. One very important addition is a chapter on the hormone tests for pregnancy, these tests having been found to be of considerable value in the determination of the presence or absence of pregnancy. The book is exhaustive and comprehensive. The new chemical tests are suit-

able for the physician who does his own examinations. The volume is packed with practical features, being probably the most complete book available on urinary analysis and diagnosis.

### Garland: Adolescence

**THE ROAD TO ADOLESCENCE.** By Joseph Garland, M.D., Instructor in Pediatrics, Harvard Medical School, etc., Cambridge, Massachusetts: The Harvard University Press. 1934. Price, \$2.50.

Our present stage of evolution is marked with an increasing amount of interest and sense of responsibility with regard to our children, especially during that delicate period of life from five to fifteen, when proper guidance is so essential if the child is to be well equipped to meet adult life.

Doctor Garland has written this book particularly to aid those who are concerned with the welfare of children during this important period. In the opening chapter he gives the rules of the Children's Charter, as set forth by the White House Conference on Child Health and Protection, and the remainder of the book is devoted to suggestions for putting these rules into effect with a reasonable degree of satisfaction.

The writer points out the absurdity of the old axiom "Children should be seen and not heard" and stresses the importance of studying the individual child in order to discover his abilities and help him to develop them. Careful consideration is given to the subjects of heredity and environment, the influence of the parents, discipline and obedience, natural instincts of the child and such physical habits as sleep, posture, diet and nutrition. Doctor Garland also gives some essential information concerning the structure of the body and the changes which take place during the adolescent stage and discusses the recognition and treatment of childhood diseases. There is included in the book an interesting and helpful chart of regulations concerning communicable diseases.

Parents, teachers, practitioners and all those who have responsibilities for the welfare of children will find in this book a wealth of sound, practical information, the application of which should result in better and happier future citizens.

L. M. C.

### Surgical Clinics

**SURGICAL CLINICS OF NORTH AMERICA.** New York Number. Volume 14, Number 2, April 1934. Philadelphia and London: W. B. Saunders Company. Issued serially, one number every other month. Per clinic year, February 1934 to December 1934. Prices: paper, \$12; cloth, \$16, net.

The April, 1934, number of the "Surgical Clinics of North America" consists of papers contributed by thirty of the leading physicians, surgeons, otolaryngologists, urologists and gynecologists of New York City. A total of thirty-five subjects are presented, all of practical interest and value. Some of the

contributions of especial interest are: "Epithelioma Developing In The Scar Following A Burn," by Dr. Benjamin Rice Shore; "Three Rare Intra-Abdominal Cases," by Drs. I. W. Held and A. Allen Goldbloom; "A Case of Obstruction Of The Common Bile Duct by the Passage Of an Echinococcus Daughter Cyst," by Dr. A. O. Wilensky; "Gangrene In Diabetes," by Dr. William Crawford White; "Some Phases Of Fractures During Childhood," by Dr. Fenwick Beekman; and four papers on gastric and duodenal problems which give special consideration to peptic ulcer, by Drs. William G. Cole, George Woolsey, J. William Hinton, and Edward J. Donovan.

The variety of topics considered in this number make it a most important one of this year's series.

### Bergey: Determinative Bacteriology

**BERGEY'S MANUAL OF DETERMINATIVE BACTERIOLOGY;** a Key for the Identification of Organisms of the Class Schizomycetes. By David H. Bergey, formerly of the University of Pennsylvania. Assisted by a Committee of the Society of American Bacteriologists. Fourth edition. Baltimore, Md.: Williams and Wilkins Company. 1934. Price, \$6.00.

The first edition of this work appeared in 1923, the second in 1925, and the third in 1930. The author has been assisted in the preparation of all editions by a committee on characterization and classification of the Society of American Bacteriologists. The committee for the fourth edition consists of Robert S. Breed, Frank M. Hulton, Bernard W. Hammer, E. G. D. Murray, and Francis C. Harrison. Although the manual has been published at the direction of the Society, the classification given has not been formally approved by it and is in no sense official or standard. It is published as a progress report with the intention of leading to a more satisfactory classification in the future. This must necessarily continue to be its status until the bacteria of this class can be classified accurately. It is, however, the most detailed, satisfactory and accurate classification that can be published to date. As such, it is the most reliable working manual available on this phase of bacteriologic science.

### McIver: Intestinal Obstruction

**A CUTE INTESTINAL OBSTRUCTION.** By Monroe A. McIver, M.D., Surgeon-in-chief, Mary Imogene Bassett Hospital, Cooperstown, N. Y. Sixty-two illustrations. New York City: Paul B. Hoeber, Inc. 1934. Price, \$7.50.

This timely work is one of the Hoeber Surgical Monographs. It has been published serially in *The American Journal of Surgery*, although, as it now appears, new material and references have been added to bring it up to date. The work is divided into three major parts, as follows: Part I, which gives a general picture of the disease; Part II, which deals with points in diagnosis and methods of



treatment; and Part III, which discusses the experimental work that has been carried out to determine the cause of death from intestinal obstruction. There are thirty-four chapters, filling a total of 397 pages. The subject is covered thoroughly, no phase being omitted or neglected. There are scores of references, an index of personal names, and the usual index of subjects. Heavy enamel paper is used throughout for the reading matter and illustrations. It is artistically bound. The volume is designed both for the surgeon and the practitioner.

### Crile: Diseases of Civilization

**DISEASES PECULIAR TO CIVILIZED MAN.** Clinical Management and Surgical Treatment. By George Crile, M.D. Edited by Amy Rowland. New York: The Macmillan Company, 1934. Price, \$5.00.

The author of this book is one of the boldest and most original thinkers in the medical profession today, and his lectures and articles on his astonishing theories and results have been followed by many with keen interest.

In this volume are gathered together Dr. Crile's ideas regarding neurocirculatory asthenia, hyperthyroidism, peptic ulcer, epilepsy, diabetes and other kinetic disorders, with a statement of the postulates upon which his theories are based and reports of the results of their clinical application.

This is not merely a collection of academic speculations, but a practical working manual of the treatment of those disorders arising from the overdevelopment of the brain, thyroid and adrenals, which Crile considers as concomitants of the feverish life men now lead and which he feels may, if not checked, put an end to the human race as we now know it. The technic of his famous adrenal denervation operation is described in full, with colored plates, and case reports are introduced to back up his contentions. Illustrations are used as needed. There is an extensive bibliography and an ample index. The bookwork is excellent.

No physician who aspires to keep a jump or two ahead of current medical thought can afford to miss the stimulus and inspiration which he will obtain by reading the clearly-reasoned opinions of an enthusiastic and erudite pioneer of the borderlands of what may well prove to be the medical science and art of the future.

### Sanger: Contraception

**BIOLOGICAL AND MEDICAL ASPECTS OF CONTRACEPTION.** Papers and Discussions Presented at the American Conference on Birth Control and National Recovery. Edited by Margaret Sanger. Washington, D. C.: National Committee on Federal Legislation for Birth Control, Inc. 1934. Price, \$1.15.

Since it is now becoming generally recognized that the control and application of contraceptive methods should be in the hands of the medical profession, it behooves all physicians to familiarize themselves with the scientific work which is being done along this

line. And here is a small book which will give them this information, in a readily assimilable form, at very moderate expense.

Here are presented the papers which were read at the recent American Conference on Birth Control and National Recovery, which bring the subject pretty well down to date. Some of the titles are: "Is the 'Safe Period' Safe?"; "Abortion Control Through Birth Control"; "The Case for Sterilization"; "The Occlusive Pessary in Contraceptive Technic"; "Intrauterine Methods"; "Immunity as a Method of Birth Control"; "The Chemistry and Physics of Contraceptives"; etc.

The whole volume is a cooperative scientific report, and every physician who ever has occasion to advise women along this line owes it to himself and his patients to obtain it and study its contents carefully. It is a real contribution to the subject.

### International Medical Annual

**THE INTERNATIONAL MEDICAL ANNUAL.** A Year Book of Treatment and Practitioner's Index. Editors: H. Letheby Tidy, M.A., M.D., Oxon., F.R.C.P., and A. Rendle Short, M.D., B.S., B.Sc., F.R.C.S. Fifty-Second Year, 1934. Baltimore: William Wood and Company. Price, \$6.00.

In this volume, twenty-three physicians of high standing, including such men as Tidy, De Courcy Wheeler, Langdon Brown and Robt. Hutchinson, with the assistance of a permanent staff, have surveyed the medical literature of the world (though a high percent of the references are to American journals) for the past year, sifting the wheat from the chaff and presenting only what had demonstrated its worth and value.

For easy reference, the material is arranged alphabetically, in a single series, and there is an adequate index.

This is the only work surveying the world's medical literature in a single volume, and will be immensely useful and time-saving to every physician.

### Robson: Sex and Reproduction

**RECENT ADVANCES IN SEX AND REPRODUCTIVE PHYSIOLOGY.** By J. M. Robson, M.D., B.Sc., F.R.S.E., Beit Memorial Research Fellow, Institute of Animal Genetics, University of Edinburgh. With introduction by Professor F. A. E. Crew, M.D., D.Sc., F.R.S.E., Director of the Institute of Animal Genetics, Edinburgh. Forty-seven illustrations. Philadelphia: P. Blakiston's Son and Company, Inc. 1934. Price, \$4.00.

This little volume deals essentially with the sexual and reproductive phenomena in the female in relation to the activity of the sex hormones. The hope that these hormones might be used in the human subject for diagnostic and therapeutic purposes can be successfully realized only if the clinician possesses an adequate knowledge of the mode of action of these hormones in relation to the physiologic processes and also understands the changes which occur in abnormal condi-



tions. The author, therefore, has stressed those experimental data which throw light on changes in primates and especially in the human subject, and has described in some detail those findings which have been obtained from the investigation of conditions in man. The intense interest manifested by many medical practitioners in this general subject indicates that this book has been published at an opportune time and that it will be eagerly welcomed as a needed contribution to medical literature.

### Morse: Chinese Medicine

**CHINESE MEDICINE.** By William R. Morse, M.D., LL.D., F.A.C.S., Dean of Medical School, Head of Department of Anatomy and Associate in Surgery, West China Union University, College of Medicine and Dentistry, Chengtu, Szechwan Province, West China. Edited by E. B. Krumbhaar, M.D. With 16 illustrations. New York: Paul B. Hoeber, Inc. 1934. Price, \$1.50.

The story of Chinese medicine is very intricate and ramifies through the whole social fabric of the nation. It cannot be separated from the religion and philosophy of the country and it is doubtful if any Westerner can ever really understand it, but Dr. Morse, who has lived in China for years, has done much to give us an insight into the minds and hearts of these remarkable people. He calls this little book "a stillborn outline of a vast subject."

It is scarcely deniable that the pragmatic experiences of a race comprising one-fourth of the world's inhabitants and having a history of three millenia or more, must be of extreme importance to mankind. In fact, the cultured and thoughtful man can, today, scarcely afford to be ignorant of China and the Chinese; and there are few places where so much information can be obtained so easily and quickly as from this beautifully made little book. The chapter on acupuncture, with its many reproductions of ancient diagrams, is especially interesting and complete; and so are those on the pulse and on Chinese materia medica.

### Duvernois: Roerich

**ROERICH.** Fragments of a Biography. By Jean Duvernois. New York: Roerich Museum Press. 1933. Price, 35c.

Nicholas Roerich is probably best known as the most original and vital painter now living; but men of science think of him as the founder and patron of the Urusvati Himalayan Research Institute, where a number of problems of importance to medicine, especially the pharmacology of many rare drug plants, are constantly being studied.

This brief biographic sketch will give any cultured man a refreshing glimpse of a remarkably versatile, colorful and dynamic contemporary personality.

### Huddleson: Brucella Infections

**BRUCELLA INFECTIONS IN ANIMALS AND MAN; Methods of Laboratory Diagnosis.** By I. Forest Huddleson, Department of Bacteriology and Hygiene, Michigan State College. Introduction by Ward Giltner, Dean, Division of Veterinary Medicine, Michigan State College. Published by the Commonwealth Fund, New York, and the Oxford University Press, Humphrey Milford, London. 1934. Price, \$2.25.

This monograph considers brucella infections briefly but fully. It reviews the history of such infections and refers to the work of the Mediterranean Fever Commission of 1904. Since that date interest in these infections has gradually increased, especially so in recent years since they have shown a tendency to become prevalent in the United States. The facts presented show that these infections deserve the earnest attention of every practitioner. Nicolle has prophesied that undulant fever will become one of the most common and most stubborn diseases. The contents include: Methods of Isolating Brucella; The Pathology of Brucella Infections; Serological and Allergic Methods of Determining Brucella Infections; and Methods of Differentiating the Species of the Genus Brucella. The book will appeal more to laboratory workers than to practitioners. The text is followed by an excellent bibliography.

### Grafe: Metabolic Diseases

**METABOLIC DISEASES AND THEIR TREATMENT.** By Erich Grafe, Professor of Medicine and Director of the Clinic of Medicine and Neurology at the University of Würzburg, Germany. Translated by Margaret Galt Boise, under the supervision of Eugene F. Du Bois, M.D., Medical Director, Russell Sage Institute of Pathology, etc., and Henry B. Richardson, M.D. Illustrated with 37 Engravings. Philadelphia: Lea & Febiger. 1933. Price, \$6.50.

Much work has been done of late to put metabolic studies on a scientific basis, and here is a condensed and critical summary of that work, in one volume, by a man who knows the subject. It is more than merely a translation of the German edition, as it has been fully revised, so as to include the latest discoveries in this field.

Dr. Grafe has brought metabolism out of the realm of pure physiology, into that of clinical medicine. Only enough theory is presented to make the discussions of therapeutics clear and rational. Treatment is the keynote throughout.

Among the conditions discussed are obesity, diabetes, habitual under-nutrition, gout, beriberi, etc.

Here is a practical working tool for all who are engaged in the care of sick folks, especially for general practitioners, among whom there is a rather general haziness of ideas regarding these disorders, the importance of which, in daily practice, steadily looms larger.

# MEDICAL NEWS



DR. WILLIAM A. EVANS

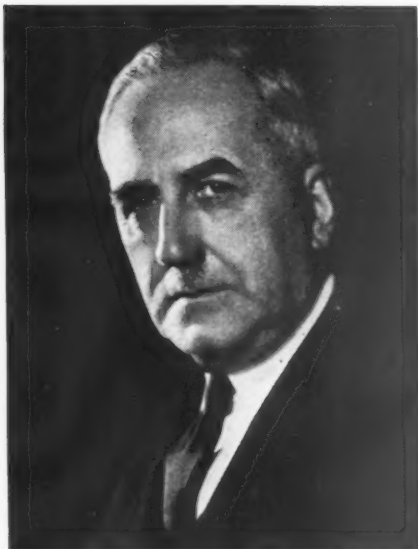
## Two Health Educators

**T**WENTY-THREE years ago the *Chicago Tribune* undertook a valuable piece of work for the instruction of the public in matters of health, with the inauguration of its daily column, "How to Keep Well." There had been so-called health columns before that time, of course, but they had an axe to grind and so were not purely educational.

The officials of the paper were peculiarly fortunate in securing as the editor of this column, Dr. William Augustus Evans, who had just completed a four-year term as health commissioner of Chicago, and had been professor of preventive medicine at Northwestern University for three years. He brought to the job enthusiasm, unwavering sincerity, wide and well digested experience and a deep and sympathetic understanding of human nature, as well as a trained literary ability which enabled him to discuss abstruse and technical questions in language which the ordinary layman could understand.

During nearly a quarter-century, "How to Keep Well" has become a national institution. Dr. Evans has received, from the readers of

his column, 1,087,447 letters. Now, in his sixty-ninth year, he is retiring from its editorship, in order to do some traveling and get the full enjoyment out of his ripe scholarship and wisdom and his charming and versatile personality, which will bring him richness wherever he goes.



DR. IRVING S. CUTTER

The famous column will not, however, be discontinued, nor will its power and value be likely to grow less, for the *Tribune* has again been fortunate in securing, as Dr. Evans' successor, another man who is a trained teacher and writer and a scholarly physician, possessing experience and understanding.

Dr. Irving S. Cutter, who assumed the editorship of the column June 17, 1934, is a graduate of the University of Nebraska, in which institution he was dean of the College of Medicine from 1915 to 1925, when he came to Chicago as dean of the Medical School of Northwestern University. He was the first editor of the *Nebraska State Medical Journal* and is the author of several books dealing with philosophic and educational matters and the history of medicine.

Following Dr. Evans' policy, Dr. Cutter will not make diagnoses or prescribe for individual cases of disease, but will devote himself to inculcating sound principles of the

science and art of rational and healthful living.



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### Madame Curie Passes

**M**ADAME MARIE CURIE, co-discoverer of radium and recognized as the greatest woman of France (though she was born in Poland), passed to her rest July 4, 1934, at the age of 66 years. Her long work with radium had so affected the structure of her bones that she was unable to recover from an attack of pernicious anemia.

Mme. Curie was the first woman who ever occupied a chair on the faculty of the Sorbonne, and she continued to deliver her regular lectures until a few weeks before her passing. Her loss will be a severe one to the cause of science all over the world.

### "The Fruit of Modernism"

**A**T the head of this paragraph stands the title of a brochure by Fred R. Marvin, which is recommended to every earnest citizen (physicians especially) who is seeking to understand the things which have happened in this country during the past few years. This booklet can be obtained from the Committee on American Education, 598 Madison Ave., New York City, for ten cents.

### Help With Collections

**S**OME time ago, Parke, Davis and Company published a lay advertisement which has helped many physicians to collect overdue accounts. If you haven't seen it, write to them for a copy (address, Detroit, Mich.) and see if you can't make it work for you.

### Syphilis and Gonorrhea

**T**HE U. S. Public Health Service sends out information to the effect that, in April, 1934, 18,377 new cases of syphilis and 10,111 of gonorrhea were reported in the United States. The case rate per 10,000 of population was 1.74 for syphilis and 0.96 for gonorrhea. Careful estimates show that the average monthly number of existing cases, per 10,000 of population, is 6.6 for syphilis and 10.2 for gonorrhea.

The best state record for syphilis was made by South Dakota, reporting only 0.03 case per 10,000, and for gonorrhea by Texas, with only 0.04 per 10,000. (These figures are so far out of line that they suggest some inaccuracy, somewhere—Ed.)

For syphilis, Oregon (0.19), New Hampshire (0.30) and Nebraska (0.31) made very good showings. South Dakota (0.24) and New Hampshire (0.30) did well on gonorrhea. The highest morbidity rates for both diseases were shown in Mississippi, with 5.16 per 10,000 for syphilis and 7.33 for gonorrhea.

### TAXES FOR EVERYBODY

*Taxes affect every person in the United States alike. Every person in this country, save those who may be dependent wholly upon charity, pays a tax. They may not know it, but they pay it just the same and, in the final analysis, the percentage of their income that goes to taxes is greater than the percentage of the income of the wealthy. That is, the fellow who only pays indirectly is harder hit than the man who pays directly. One pays a tax when he remits his rent, when he buys a pound of flour or a loaf of bread, rides in a street-car or upon a railroad train, because the tax the producer, the wholesaler, the retailer, the service man pays, is reflected in what he sells, or the service he renders.—COMMITTEE ON AMERICAN EDUCATION.*

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